

# TC-RX390

## SERVICE MANUAL

US Model  
Canadian Model  
AEP Model



Model Name Using Similar Mechanism	TC-RX370
Tape Transport Mechanism Type	TCM-190RB12CJ

### SPECIFICATIONS

#### Recording system

4-track 2-channel stereo  
Fast winding time  
Approx. 90 sec. (with Sony C-60 cassette)

#### Bias

AC bias

#### Heads

Erasing head x 1 (F&F head)  
Playback/Recording head x 1 (SD head)  
Capstan motor x 1 (DC servo motor)  
Reel motor x 1 (DC motor)

#### Signal-to-noise ratio (at peak level)

Cassette (Dolby NR OFF)	Type IV (Sony Metal-S>Select)	Type II (Sony UX-S)	Type I (Sony HF-S)
	58 dB	57 dB	55 dB

Measured at peak level weighted without NR. The S/N is improved by about 15 dB at 500 Hz and by about 20 dB about 1 kHz with Dolby-C NR on, and by 5 dB at 1 kHz and by 10 dB about 5 kHz with Dolby-B NR on.

#### Harmonic distortion

0.4% (with Sony TYPE I, 160 nWb/m,  
315 Hz, 3rd H.D.)  
1.8% (with Sony TYPE IV, 250 nWb/m,  
315 Hz, 3rd H.D.)

#### Frequency response (DOLBY NR OFF)

Type IV cassette (Sony Metal-S>Select)	30 - 15,000 Hz ( $\pm 3$ dB, IEC) 30 - 13,000 Hz [ $\pm 3$ dB (-4 dB recording)]
Type II cassette (Sony UX-S)	30 - 15,000 Hz ( $\pm 3$ dB, IEC)
Type I cassette (Sony HF-S)	30 - 14,000 Hz ( $\pm 3$ dB, IEC)

#### Wow and flutter

$\pm 0.13\%$  W.Peak (IEC)  
 $0.07\%$  W.RMS (NAB)  
 $\pm 0.18\%$  W.Peak (DIN)

#### Inputs

Line inputs (phono jacks)	Sensitivity	0.16 V
	Input impedance	47 k ohms

#### Outputs

Line outputs (phono jacks)	Rated output level	0.5 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Headphones (stereo phono jack)	Output level	1 mW at a load impedance of 32 ohms

#### General

##### Power requirements

US, Canadian Model : 120V AC, 60 Hz  
AEP Model : 220-230V AC, ( or 240V AC adjustable by Sony personnel ), 50/60 Hz

##### Power consumption

21 W

##### Dimensions

Approx. 430 x 123 x 300 mm (w/h/d)  
(17 x 4 7/8 x 11 7/8 inches)

including projecting parts and controls

##### Weight

Approx. 3.8 kg (8 lbs 6 oz)

#### Supplied accessories

Audio connecting cords (2)

Design and specifications are subject to change without notice.

#### Note

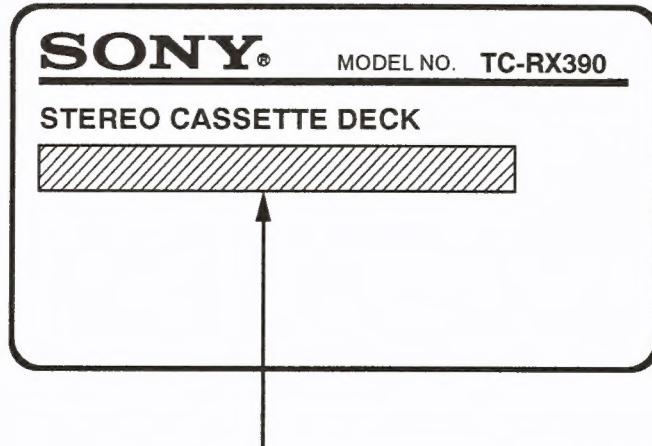
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

STEREO CASSETTE DECK  
**SONY**®



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MODEL IDENTIFICATION  
(*Specification Label*)

US, Canadian model : AC 120V 60Hz 21W  
 AEP model : AC 220-230V~50 /60Hz 21W

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

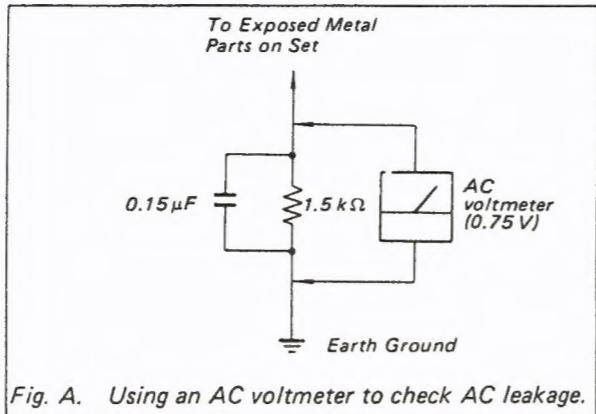


Fig. A. Using an AC voltmeter to check AC leakage.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

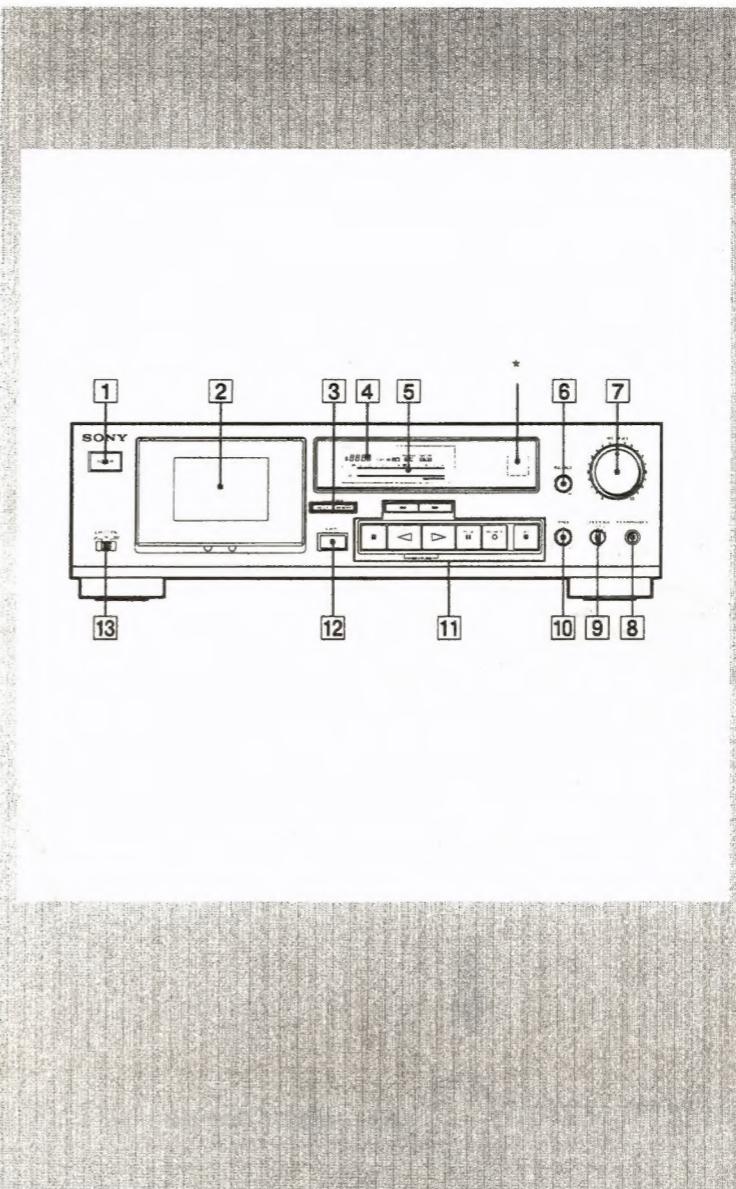
### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## SECTION 1 GENERAL

This section is extracted from instruction manual.

### 1-1. IDENTIFYING THE PARTS



Front Panel

For details, refer to the page number indicated in parenthesis.

- 1 POWER switch
- 2 Cassette holder
- 3 Counter buttons  
RESET button  
MEMORY button
- 4 DIGITAL COUNTER
- 5 PEAK LEVEL METER
- 6 BALANCE control
- 7 REC (recording) LEVEL control
- 8 HEADPHONES jack (stereo phone jack)
- 9 DOLBY NR (noise reduction) switch
- 10 BIAS control
- 11 Tape operation buttons  
◀◀ (leftward fast winding) button  
▶▶ (rightward fast winding) button  
■ (stop) button  
◀ (reverse play) button  
▶ (forward play) button  
■■ PAUSE button  
○ REC MUTE (record muting) button  
● REC (recording) button
- 12 ▲ (eject) button
- 13 DIRECTION mode switch

\* Remote control sensor  
You can remotely control this cassette deck with:

- A remote commander that came with a Sony amplifier or receiver if it has the mark and cassette deck control capability.
- An optional Sony remote commander with the mark and cassette deck control capability.

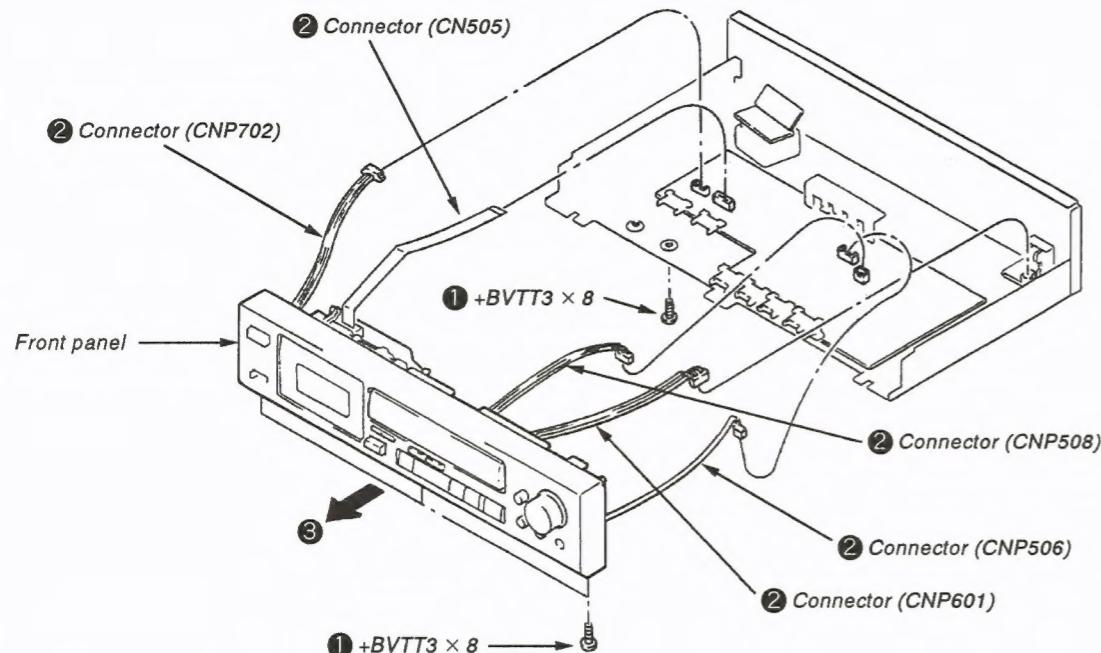
## SECTION 2 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

### CASE

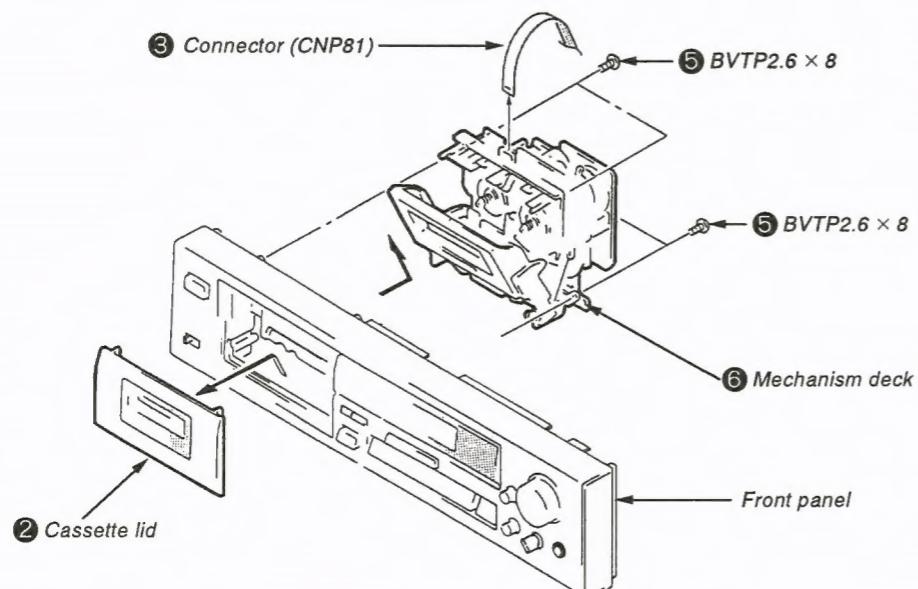
Unscrew the four case attachment screws M3 × 8 and remove the case.

### 2-1. FRONT PANEL

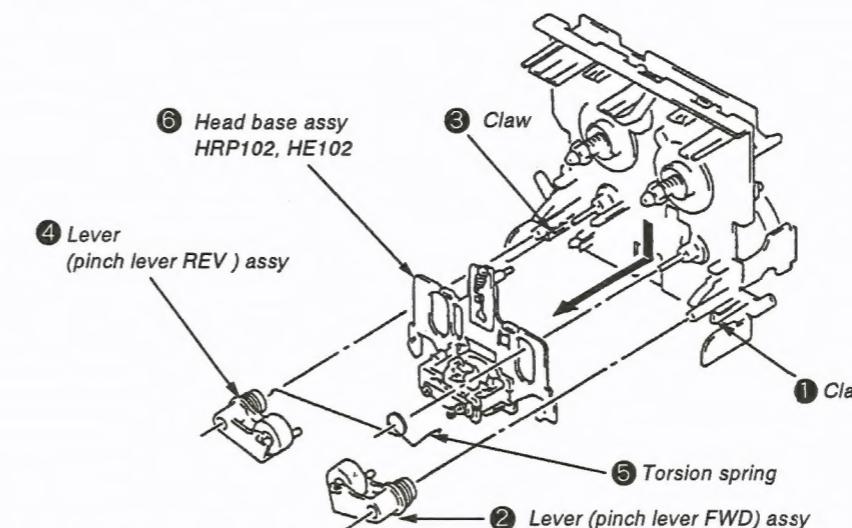


### 2-2 MECHANISM DECK

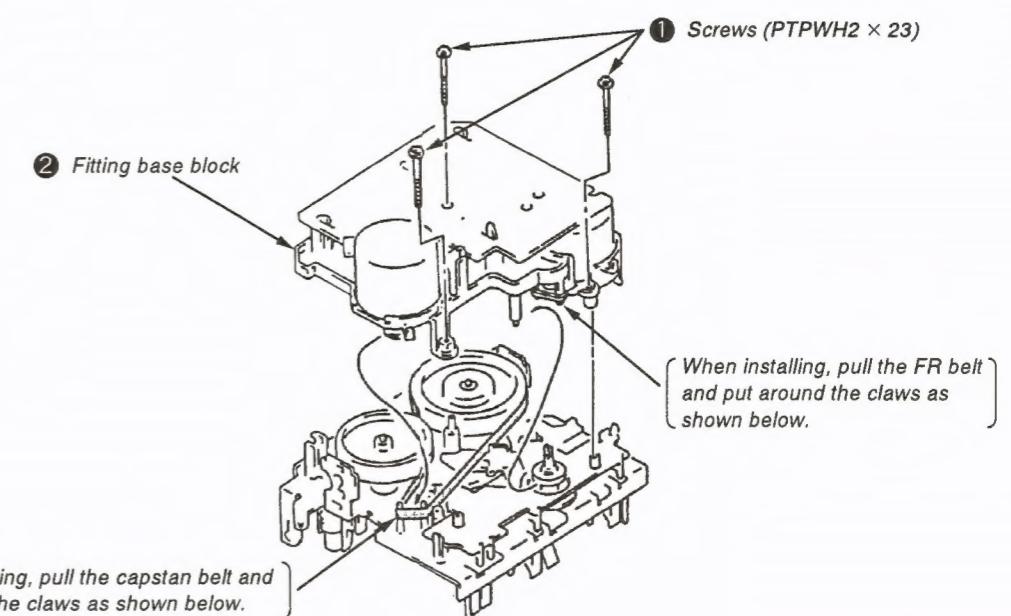
① Press the eject button.



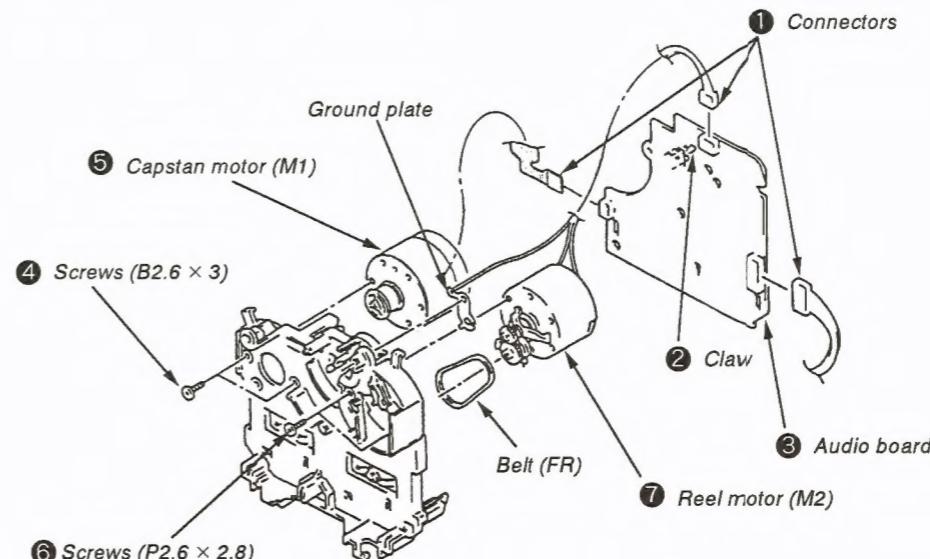
### 2-3. HEAD



### 2-4. FITTING BASE BLOCK

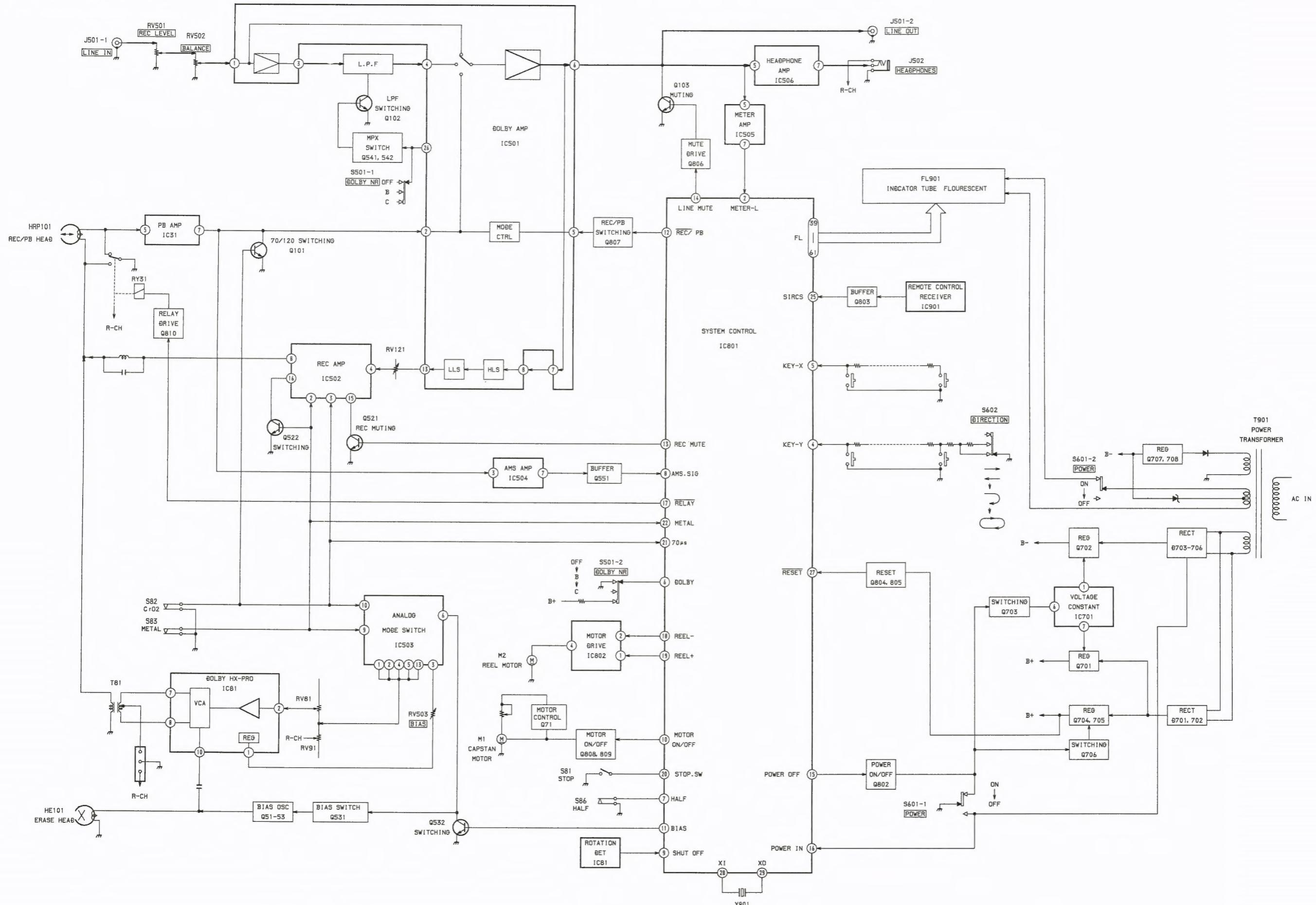


### 2-5. MOTOR



## SECTION 3 BLOCK DIAGRAM

### 3-1. BLOCK DIAGRAM



**SECTION 4**  
**EXPLANATION OF IC TERMINALS**

**IC801 M50940-395SP**

Pin. No.	Terminal name	I/O	Terminal explanation																																			
1	VREF	I	Reference voltage 5V																																			
2	METER LCH	I	Meter level Lch																																			
3	METER RCH	I	Meter level Rch																																			
4	KEY Y	I	0V = stop, 0.8V = rew, 1.7V = ff, 2.6V = rec, 3.4V = ssw, 4.2V = -, 5V = ==																																			
5	KEY X	I	0V = pause, 0.8V = fwd, 1.7V = rev, 2.6V = recm, 3.4V = reset, 4.2V = memory																																			
6	DOLBY	I	OFF : 0 - 2.2V, B : 2.2 - 4.8V, C : 4.8V -																																			
7	HALF	I	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th colspan="2">Switch status</th> <th>ON...Available</th> <th></th> </tr> <tr> <th colspan="2"></th> <th>OFF...Not Available</th> <th></th> </tr> <tr> <th>REC A</th> <th>REC B</th> <th>HALF</th> <th></th> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>5V</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>3.9V</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>2.8V</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>2V</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>1V</td> </tr> </table>				Switch status		ON...Available				OFF...Not Available		REC A	REC B	HALF		OFF	OFF	OFF	5V	ON	OFF	ON	3.9V	OFF	OFF	ON	2.8V	ON	ON	ON	2V	OFF	ON	ON	1V
Switch status		ON...Available																																				
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REC A	REC B	HALF																																				
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OFF	OFF	ON	2.8V																																			
ON	ON	ON	2V																																			
OFF	ON	ON	1V																																			
8	AMS. SIG	I	Ams signal input 2.5V < MUSIC, 2.5V > not MUSIC																																			
9	SHUT OFF	I	Supply pulse																																			
10	MOTOR ON/OFF	O	Capstan motor. 5V = ON, 0V = OFF																																			
11	BIAS	O	Bias osc 5V = ON																																			
12	REC/PB	O	Recording/Playback selector for Dolby IC select 0V = Record, 5V = Playback																																			
13	REC MUTE	O	Rec out mute. 5V = MUTE																																			
14	LINE MUTE	O	Line out mute. 0V = MUTE																																			
15	POWER OFF	O	0V = Power OFF, cut OFF = Power ON																																			
16	POWER IN	I	0V = Power OFF																																			
17	RELAY	O	Relay selctor. 5V = Record, 0V = Playback																																			
18	REEL -	O	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>trg</td> <td>ff</td> <td>play</td> <td>stop</td> </tr> <tr> <td>0</td> <td>1</td> <td>open</td> <td>0</td> </tr> </table>	trg	ff	play	stop	0	1	open	0	The open is high impedance.																										
trg	ff	play	stop																																			
0	1	open	0																																			
19	REEL +	O																																				
20	STOP. SW	I	Mecha stop mode SW. 5V = stop																																			
21	70 $\mu$ S	I	Tape type 2. 5V = ON																																			
22	METAL	I	Tape type 4. 5V = ON																																			
23	NC	I	GND																																			
24	NC	I	GND																																			
25	SIRCS	I	Sircs signal in																																			
26	CNVSS	I	GND																																			
27	RESET	I	Reset. 0V = Reset																																			
28	XIN	I	System clock in																																			
29	XOUT	O	System clock out																																			
30	CXIN	I	Not used																																			
31	CXOUT	O	Not used																																			
32	VSS	I	GND																																			
33	NC	O	Not used																																			
34	VERSION	I	5V = rev, 0V = oneway																																			
35	TEST	I	Test mode selector. 5V = normal, 0V = test mode																																			

Pin. No.	Terminal name	I/O	Terminal explanation			
36	NC	I	GND			
37	NC	I	GND			
38	- 21V	I	- 21V			
39 - 54	FL-a - p	O	FLT segment			
55 - 61	FL-g5 - g1	O	FLT grid			
62	NC	O	Not used			
63	AVCC	I	Analog power supply in + 5V			
64	VCC	I	Power supply in + 5V			

**IC502 CXA1579P**

Pin. No.	Terminal name	I/O	Terminal explanation			
1	SPEED	I	GND			
2	METAL	I	Metal tape selector terminal "H" : METAL			
3	70 $\mu$ S	I	CrO <sub>2</sub> tape selector terminal "H" : CrO <sub>2</sub>			
4	REC IN1	I	Recording equalizer amp input terminal			
5	GND		GND			
6	BOOST1	I	External capacitor for low-pass boost connecting terminal			
7	VEE		- 7.5V			
8	REC OUT1	O	Recording equalizer amp output terminal			
9	REC OUT2	O	Recording equalizer amp output terminal			
10	VCC		+ 7.5V			
11	BOOST2		External capacitor for low-pass boost connecting terminal			
12	IREF	O	Standard current setting terminal of monolithic filter			
13	REC IN2	I	Recording equalizer amp input terminal			
14	REC CAL	I	Recording calibration terminal "H" : Recording level gain down			
15	REC MUTE	I	Recording Mute ON/OFF selector terminal "H" : Mute OFF "L" : Mute ON			
16	GP CAL	I	High-pass calibration terminal "H" : High-pass level gain down "L" : High-pass level gain up			

## SECTION 5 ADJUSTMENTS

### 5-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

- Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback/erase head	pinch roller
rubber belts	capstan
idle	
- Demagnetize the record/playback head with a head demagnetizer. (Head demagnetizer do not approach for the erase head.)
- Do not use a magnetized screwdriver for the adjustment.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### Torque Measurement

Torque	Torque	Meter reading
Forward	CQ-102C	30 to 65g·cm (0.42 to 0.9 oz·inch)
Forward back tension	CQ-102C	1 to 6g·cm (0.014 to 0.08 oz·inch)
Reverse	CQ-102RC	30 to 65g·cm (0.42 to 0.9 oz·inch)
Reverse back tension	CQ-102RC	1 to 6g·cm (0.014 to 0.08 oz·inch)
FF/REW	CQ-201B	70 to 120g·cm (0.98 to 1.67 oz·inch)

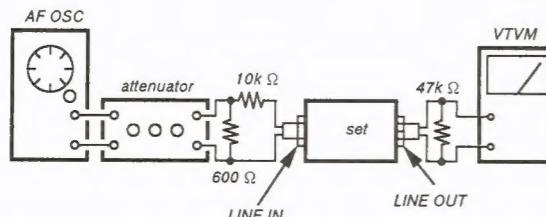
### 5-2. ELECTRICAL ADJUSTMENTS

#### PRECAUTION

- The adjustment should be performed in the publication. (Be sure to make playback adjustment at first.)
- The adjustments and measurement should be performed for both L-CH and R-CH.
  - Switch position
 

DOLBY NR switch	: OFF
DIR MODE switch	: $\leftrightarrow$
  - Standard record position: Deliver the standard input signal level to input jack and set the REC LEVEL control to obtain the standard output signal level as follows.

— Record Mode —



#### Standard Input Level

Input terminal	LINE IN
source impedance	10kΩ
input signal level	0.5V (-3.8dB)

#### Standard Output Level

Output terminal	LINE OUT
load impedance	47kΩ
output signal level	0.5V (-3.8dB)

#### Test Tape

Tape	Contents	Use
P-4-A100	10kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

0dB=0.775V

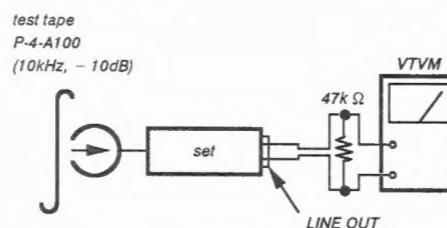
#### Test Mode

- Insert a short-circuit plug into TP801 (2P) and turn ON the power switch. (Earth pin 35 of IC801 and turn ON the power switch.) The memory is turned ON when the recording starts, and the counter starts counting from "0000". When applying +5V to pin 35 of IC801, the FL tube will be fully lit.
- To release the test mode, remove the short plug and turn off the power switch.
- Remove the short plug after completion of adjustment.

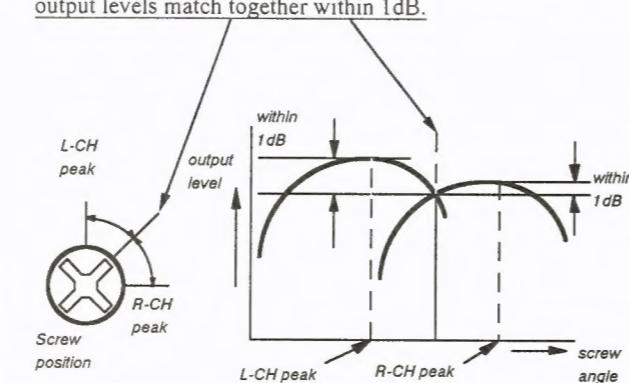
#### Record/Playback Head Azimuth Adjustment

##### Procedure :

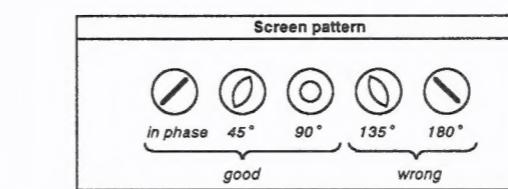
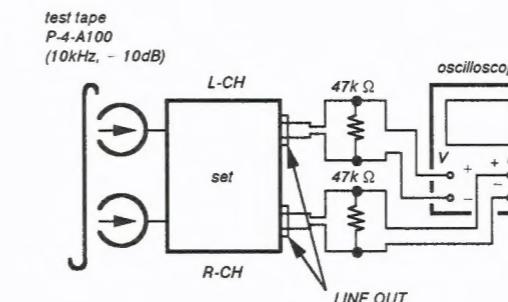
- Forward playback Mode



- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

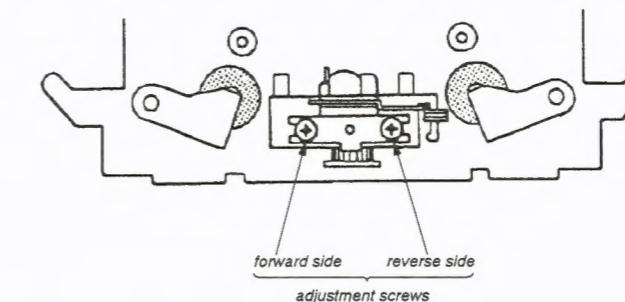


#### 3. Playback Mode



- Change the reverse playback mode and repeat the steps 1 to 3.
- After the adjustment, lock the adjustment screws with suitable locking compound.

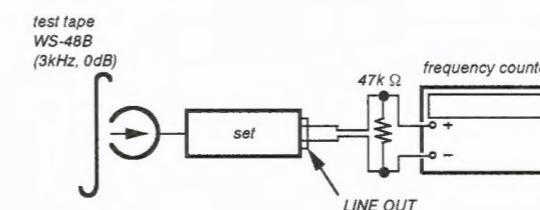
Adjustment Location : — record/playback head —



#### Tape Speed Adjustment

##### Procedure :

- Forward Playback Mode —



- Set to FWD playback mode.
- Adjust RV71 so that the frequency counter reading becomes  $3,000 \pm 10\text{Hz}$ .

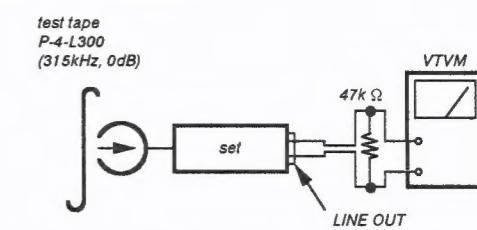
Frequency difference between the beginning and the end of the tape should be within 3%.

Adjustment Location : AUDIO board

#### Playback Level Adjustment

##### Procedure :

- Forward Playback Mode —



Adjust RV11(L-CH) and RV21(R-CH) so the VTVM reading becomes the adjustment limits below.

##### Adjustment Value :

LINE OUT level :  $-7.7 \pm 0.5\text{dB}$  (0.301 to 0.338V)

Level difference between channels : within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times

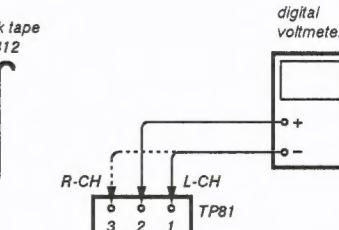
Adjustment Location : AUDIO board

#### Bias Consumption Current Adjustment

This adjustment should be performed when replacing the head assy or the bias oscillating transformer (T81, T91).

##### Procedure :

( ) : R-CH



- Connect the digital voltmeter to test point TP81.
- Set RV81 (RV91) to mechanical center.
- Set to FWD record mode.

- Adjust T81 (T91) so that the digital voltmeter reading becomes minimum.

Adjustment Location : AUDIO board

## SECTION 6 DIAGRAMS

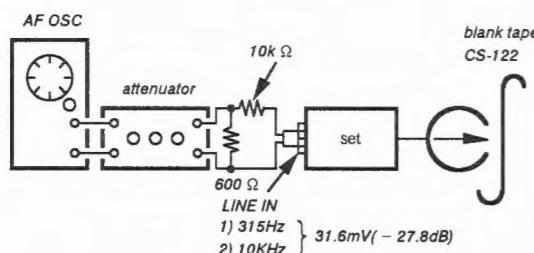
### Record Bias Adjustment

#### Setting :

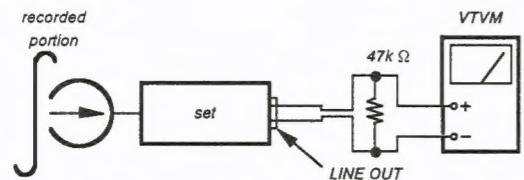
REC LEVEL control : standard record position (Refer to page 11.)

#### Procedure :

1. Record Mode



2. Playback Mode



Confirm that the 10kHz playback output is  $0 \pm 0.5\text{dB}$  relative to the 315Hz output. If necessary, adjust RV81(L-CH), RV91(R-CH) and repeat the steps given above.

Adjustment Location : AUDIO board

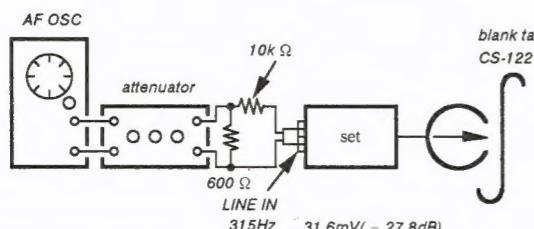
### Record Level Adjustment

#### Setting :

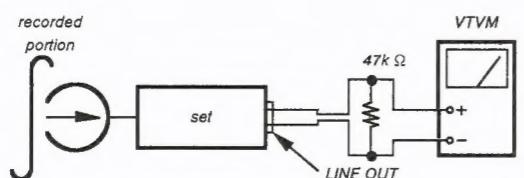
REC LEVEL control : standard record position (Refer to page 11.)

#### Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV121(L-CH), RV221(R-CH) and repeat the steps 1 and 2.

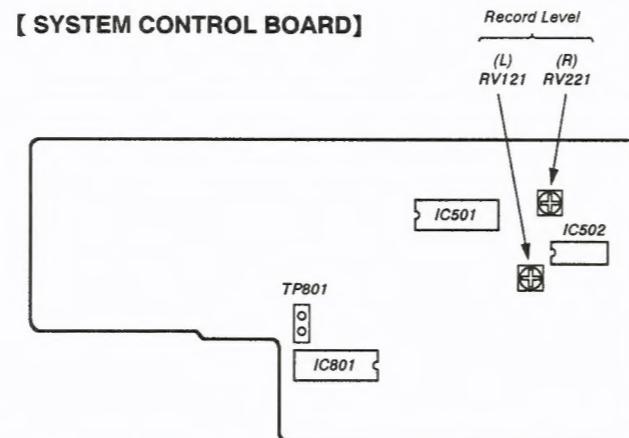
### Adjustment Value :

LINE OUT level :  $-26 \pm 0.5\text{dB}$  (36.7 to 41.1mV)

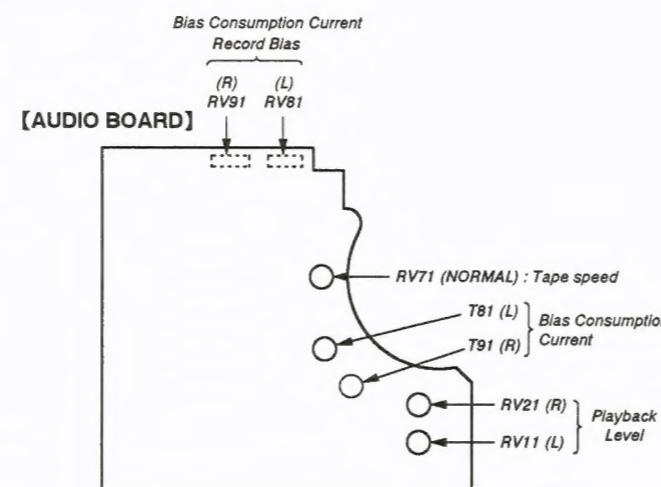
### Adjustment Location : SYSTEM CONTROL

— Adjustment Parts Location Diagrams —

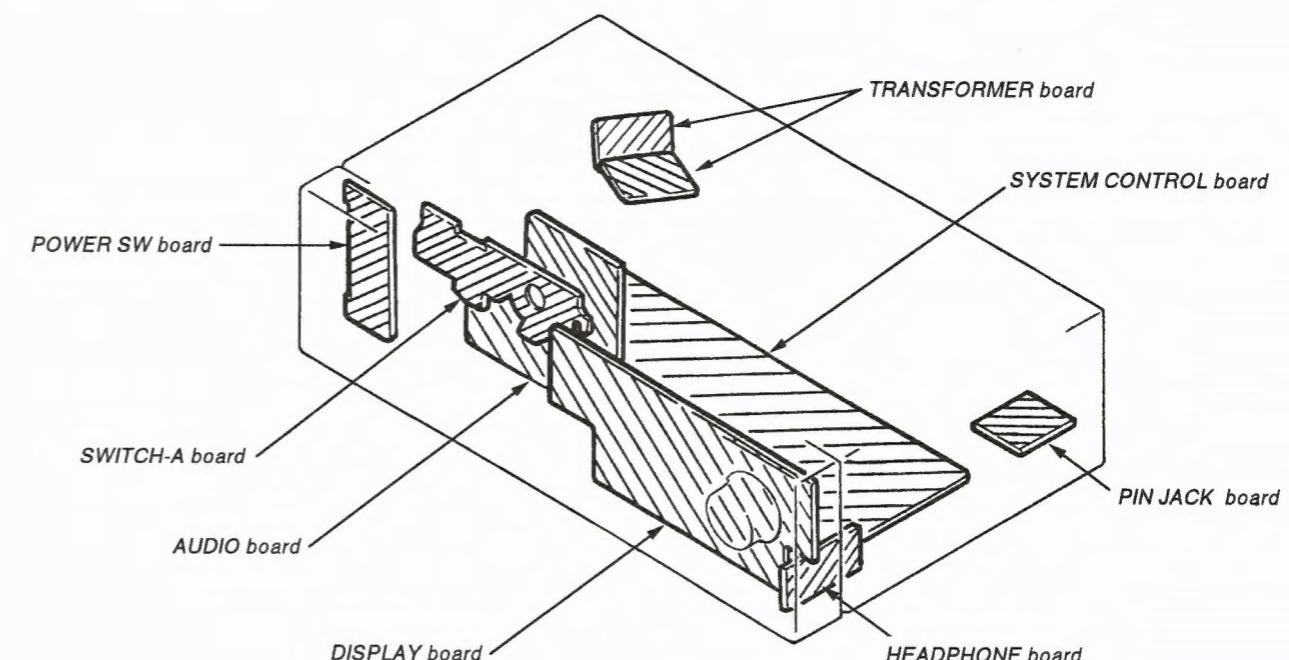
#### [ SYSTEM CONTROL BOARD ]

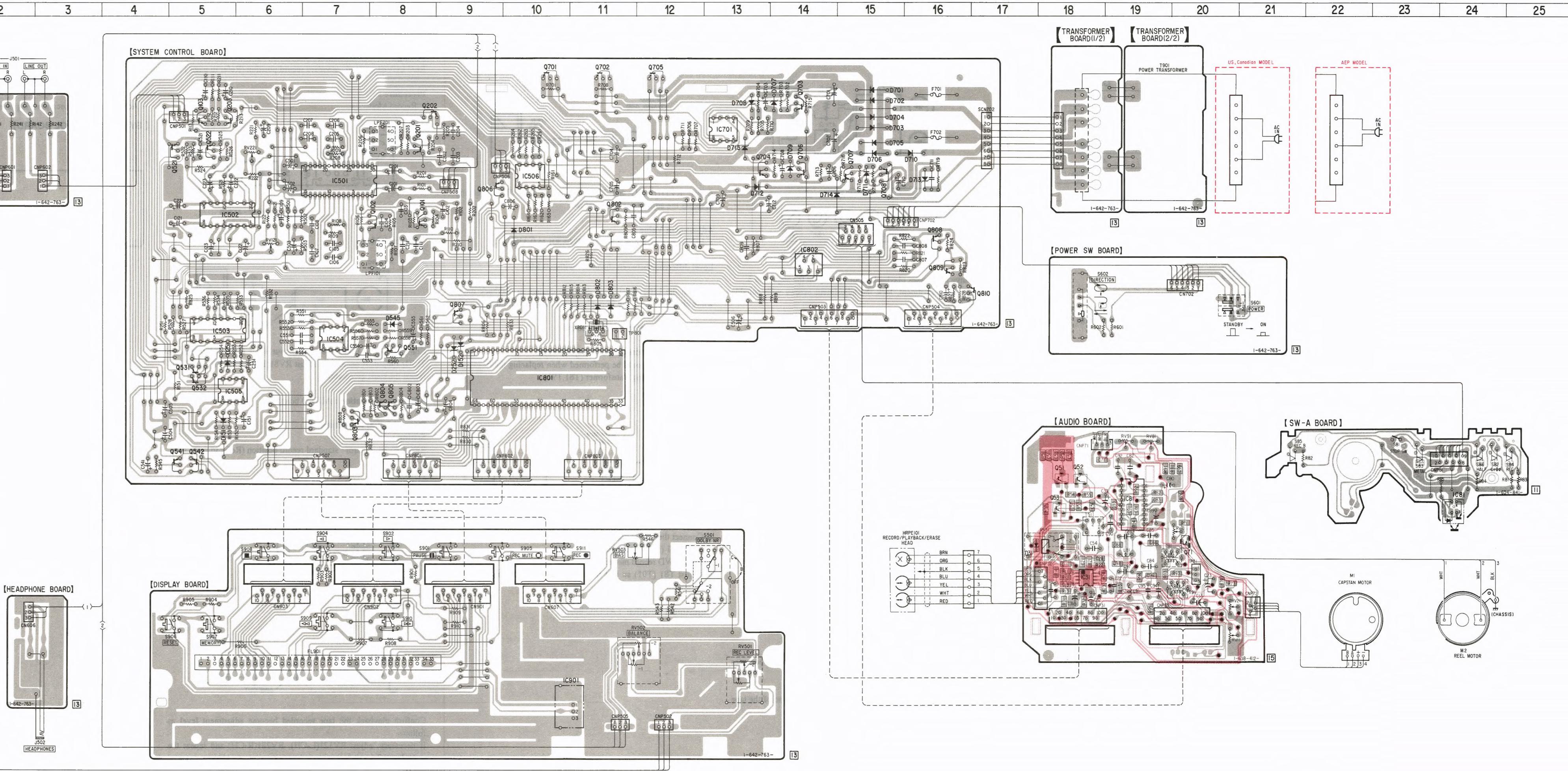
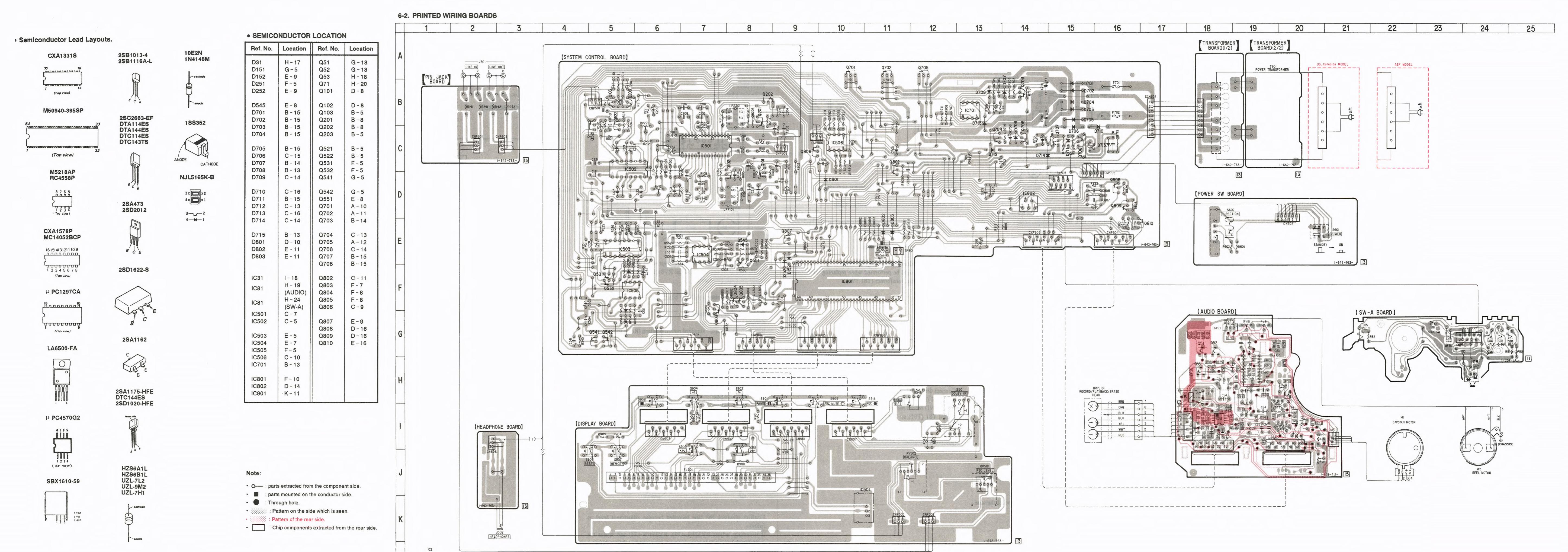


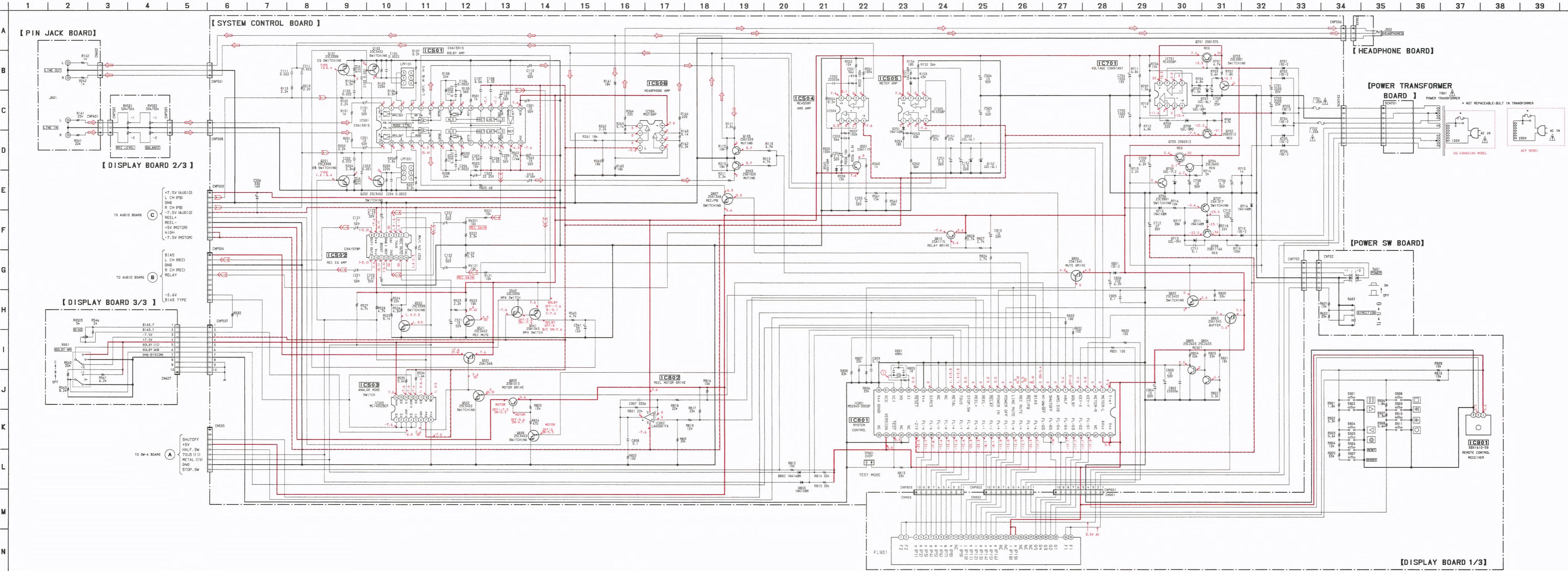
#### [ AUDIO BOARD ]



### 6-1. CIRCUIT BOARDS LOCATION

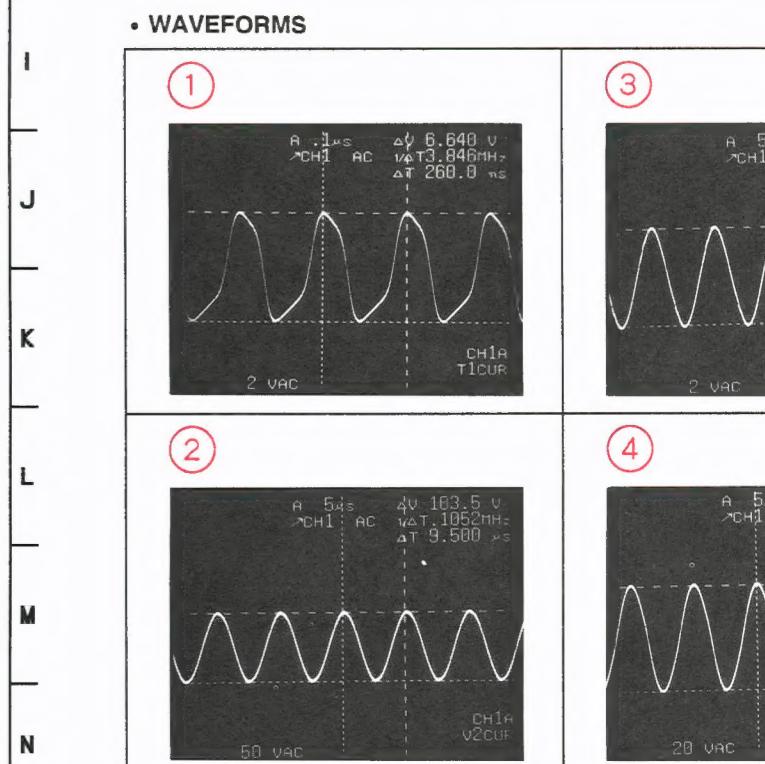






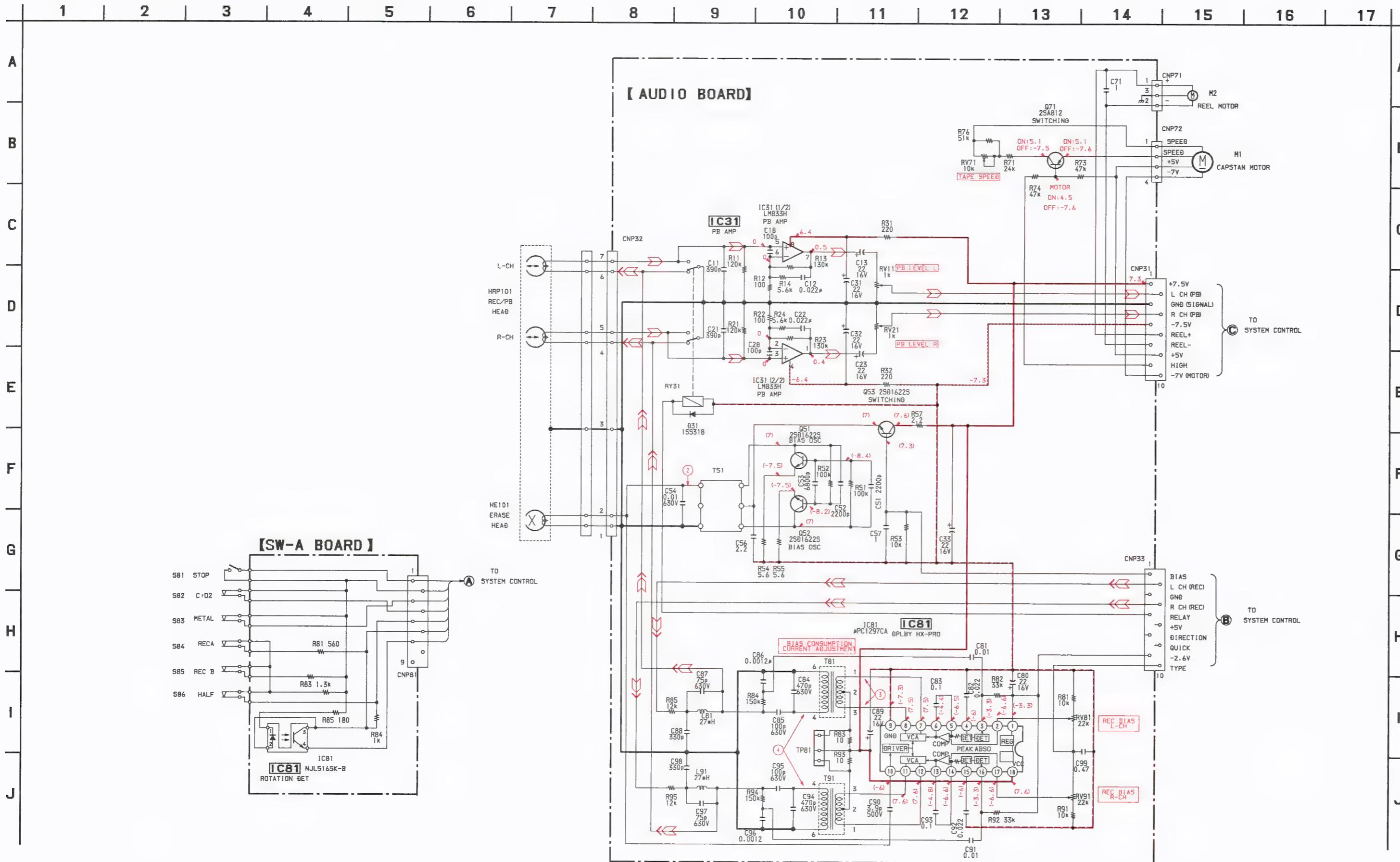
**Notes:**

- The components identified by  $\Delta$  or  $\Delta$  are critical for safety. Replace with part number specified.
- $\text{B} \rightarrow \text{L}$  = Line.
- $\text{B} \rightarrow \text{L}$  = Line.
- $\square$  = adjustment for repair.
- \* = selected to yield optimum performance.
- Waveforms are dc with respect to ground under no-signal conditions.
- norm = STOP
- ( ) = REC
- Voltages are taken with a DVM (input impedance  $1 \text{ M}\Omega$ ). Voltage variations are based on normal production tolerances.
- Signal path:
  - $\rightarrow$  : P-C
  - $\Rightarrow$  : R-C



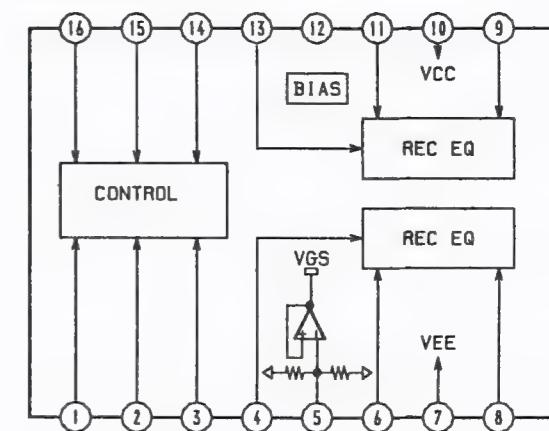
## 6-4. SCHEMATIC DIAGRAM (AUDIO SECTION)

• Refer to page 23 for note.



## • IC BLOCK DIAGRAM

## CXA1378P



## SECTION 7 EXPLODED VIEWS

### NOTE:

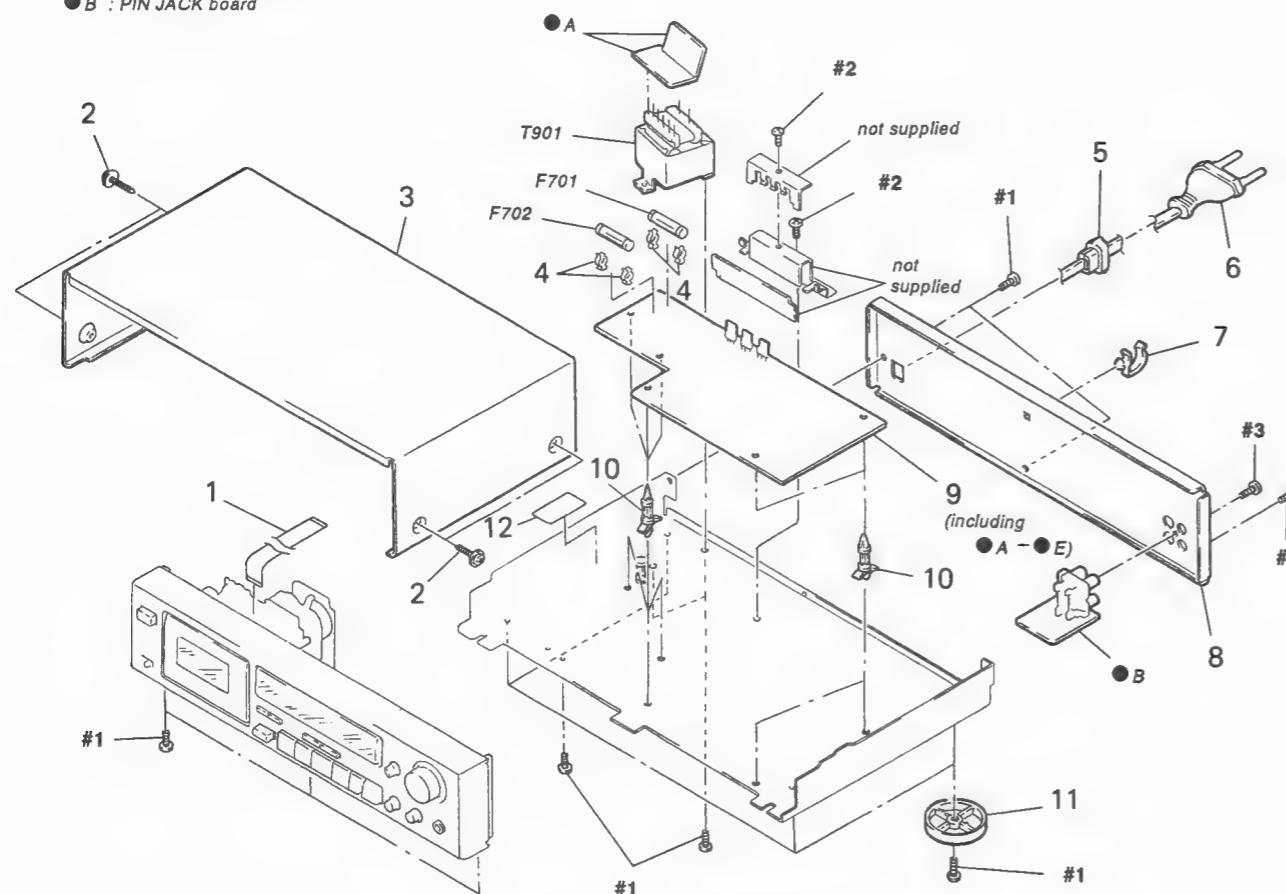
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a callout number in the remark column.
- Color indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE)....(RED)  
Parts color Cabinet's color

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.  
Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 7-1. CHASSIS SECTION

- A : TRANSFORMER board
- B : PIN JACK board

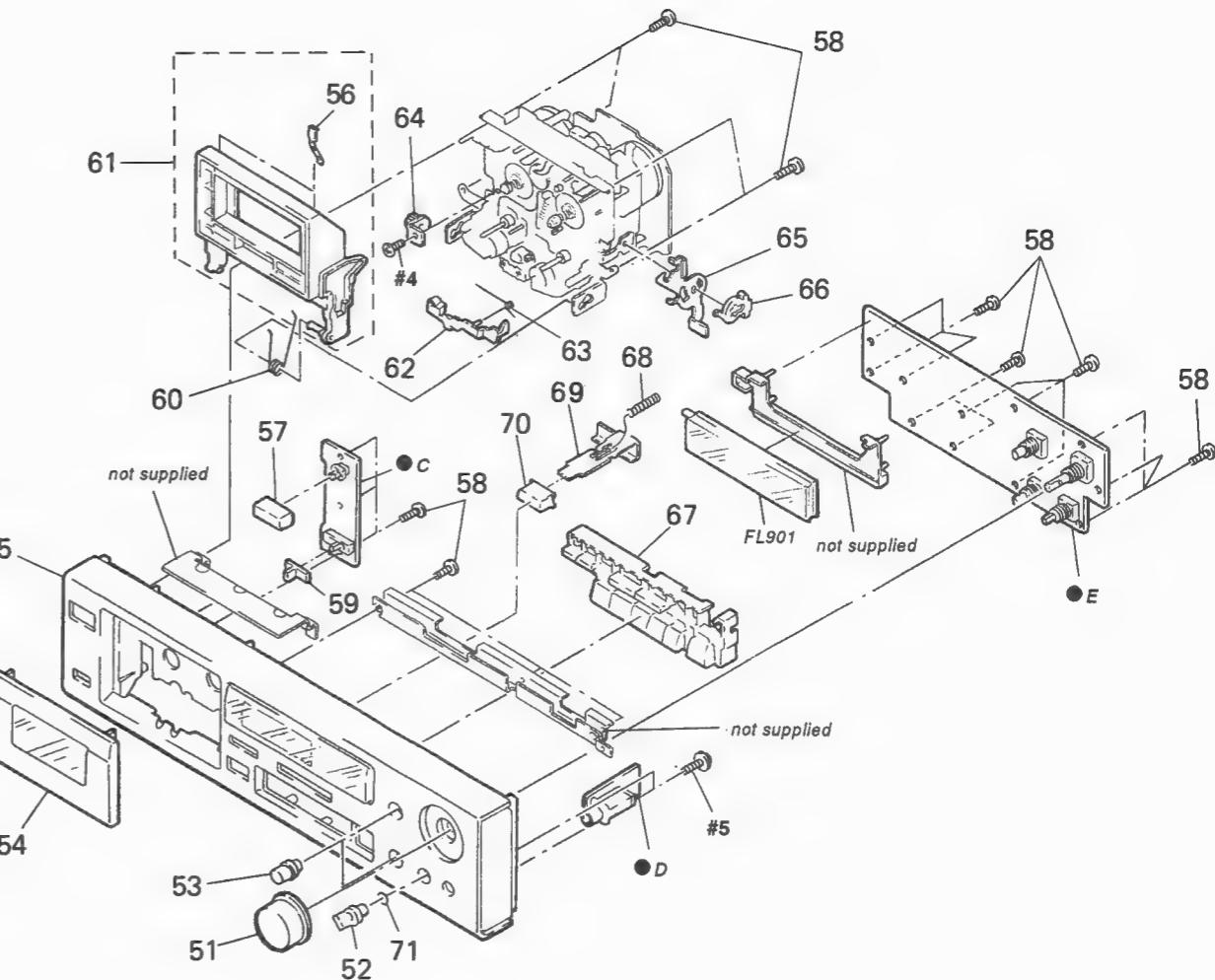


Ref. No.	Part No.	Description	Remark
1	1-575-781-11	WIRE, FLAT TYPE (9 CORE)	
2	3-704-366-01	SCREW (CASE) (M3X8)	
3	3-332-578-42	CASE	
* 4	1-533-213-31	HOLDER, FUSE	
* 5	3-703-244-00	BUSHING (2104), CORD (AEP)	
* 5	3-703-571-11	BUSHING (S) (4516), CORD (US, Canadian)	
$\Delta$ 6	1-555-795-00	CORD, POWER, EUO PLUG (AEP)	
$\Delta$ 6	1-558-945-11	CORD, POWER (POLAR. SPT-1) (US, Canadian)	
* 7	4-949-235-01	HOOK	
* 8	3-377-944-01	PANEL, BACK (US, Canadian)	
* 8	3-377-944-11	PANEL, BACK (AE1)	
* 8	3-377-944-21	PANEL, BACK (AE2)	

Ref. No.	Part No.	Description	Remark
* 9	A-2006-786-A	SYSTEM CONTROL BOARD, COMPLETE	
* 10	3-346-265-11	HOLDER, PC BOARD	
11	4-943-148-32	FOOT (F58175SW) (US, Canadian)	
11	4-943-148-42	FOOT (F58175SW) (AEP)	
* 12	3-703-044-26	LABEL, CAUTION (US, Canadian)	
$\Delta$ F701	1-532-285-00	FUSE, TIME-LAG (AEP)	
$\Delta$ F701	1-532-741-11	FUSE, GLASS TUBE (US, Canadian)	
$\Delta$ F702	1-532-285-00	FUSE, TIME-LAG (AEP)	
$\Delta$ F702	1-532-741-11	FUSE, GLASS TUBE (US, Canadian)	
$\Delta$ T901	1-450-750-11	TRANSFORMER, POWER (AEP)	
$\Delta$ T901	1-450-751-11	TRANSFORMER, POWER (US, Canadian)	

### 7-2. FRONT PANEL SECTION

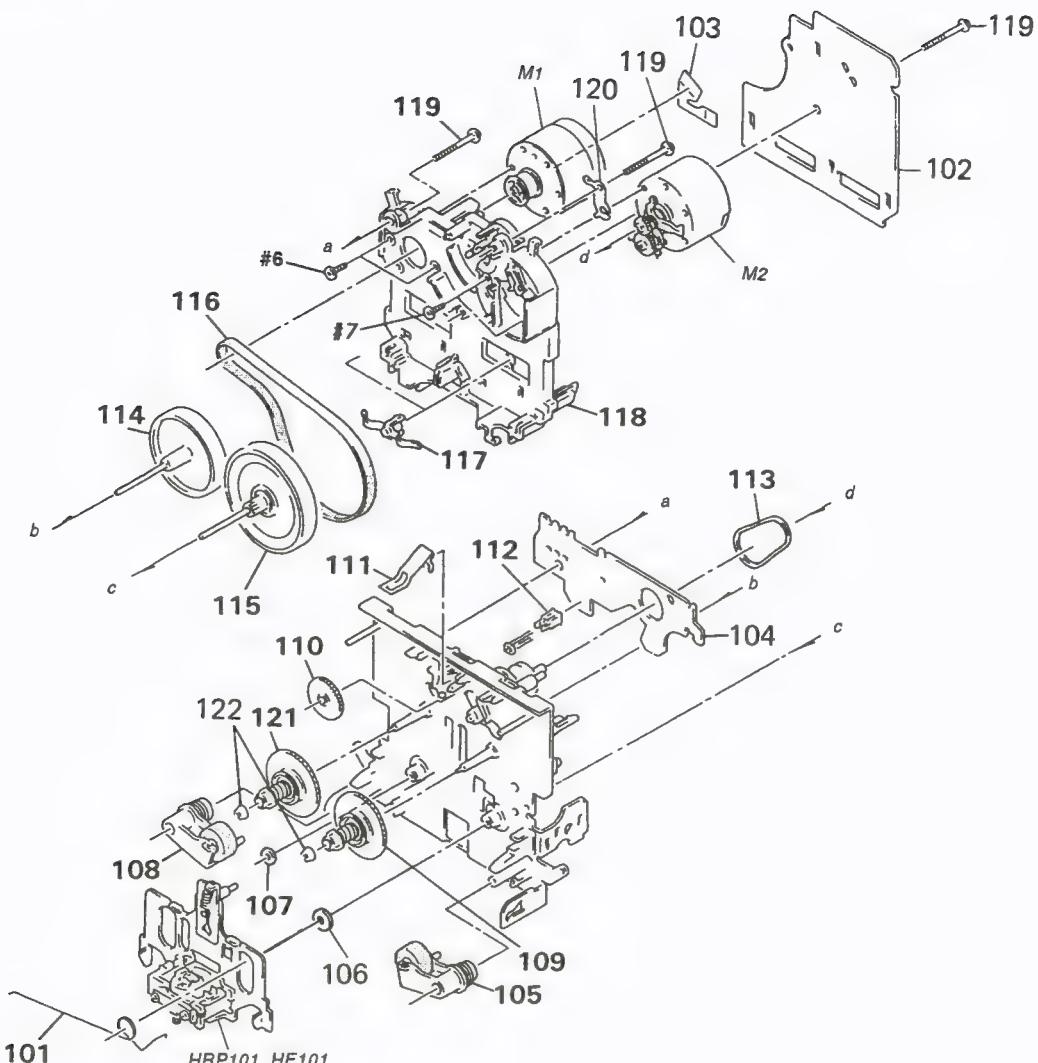
- C : POWER SW board
- D : HEADPHONE board
- E : DISPLAY board



Ref. No.	Part No.	Description	Remark
51	3-367-438-11	KNOB (REC)	
52	3-380-950-01	KNOB (VOL)	
53	3-367-431-01	KNOB (BAL)	
54	X-3365-338-1	LID (R) ASSY, CASSETTE	
55	X-3365-337-1	PANEL ASSY, FRONT (AEP)	
55	X-3365-339-1	PANEL ASSY, FRONT (US, Canadian)	
56	3-308-823-11	SPRING	
57	4-922-921-01	BUTTON (POWER)	
58	4-951-620-01	SCREW (2.6X8), +BVTP	
59	4-931-421-11	KNOB (T & S)	
60	3-354-960-01	SPRING (LOADING R), TORSION	
61	X-3340-195-1	HOLDER (R) ASSY, CASSETTE (AEP)	

Ref. No.	Part No.	Description	Remark
61	X-3365-324-1	HOLDER (R) ASSY, CASSETTE (US, Canadian)	
62	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
63	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
64	3-354-963-01	DAMPER	
* 65	3-354-954-01	LEVER (LOCK LEVER R)	
66	3-354-957-01	JOINT (LOCK LEVER)	
67	3-367-434-31	BUTTON (A)	
68	3-359-906-01	SPRING, COMPRESSION	
* 69	3-370-068-01	SLIDER (EJECT)	
70	3-370-067-01	BUTTON (EJECT)	
71	3-356-935-01	SPRING	
FL901	1-519-713-11	INDICATOR TUBE, FLUORESCENT	

7-3. MECHANISM SECTION 1  
(TCM-190RB12CJ)

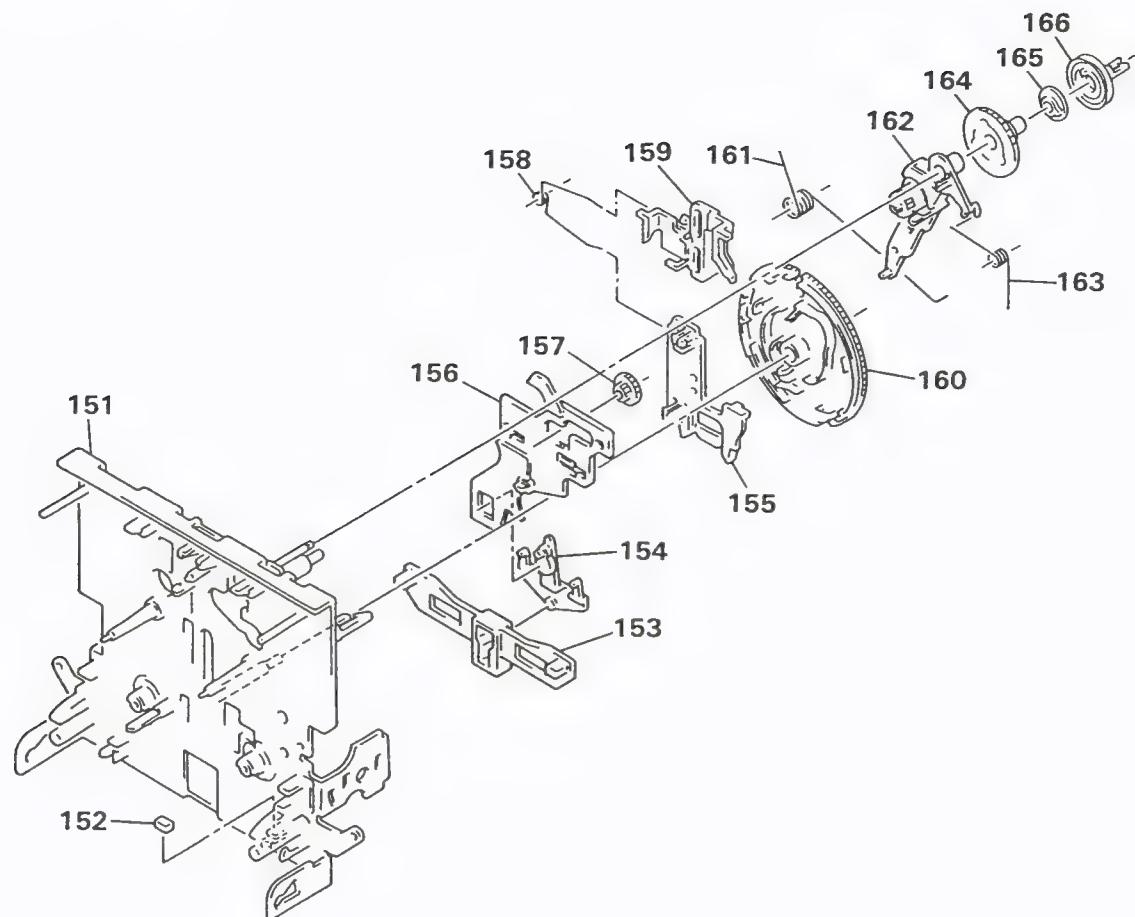


Ref. No.	Part No.	Description	Remark
101	3-359-455-01	SPRING, TORSION	
* 102	A-2006-828-A	AUDIO BOARD, COMPLETE	
103	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
* 104	1-634-841-14	SW-A BOARD	
105	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
106	3-356-713-01	WASHER	
107	3-356-714-01	WASHER	
108	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
109	X-3359-404-1	TABLE ASSY, REEL	
110	3-359-424-01	GEAR (REV GEAR)	
111	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	

Ref. No.	Part No.	Description	Remark
112	3-343-419-01	HOLDER (S SENSER A)	
113	3-359-466-01	BELT (FR), SQUARE	
114	X-3359-410-1	FLYWHEEL (REV) ASSY	
115	X-3364-554-1	FLYWHEEL (FWD) ASSY	
116	3-359-417-01	BELT (FLAT), CAPSTAN	
117	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 118	3-359-436-01	BASE (THRUST RETAINER), FITTING	
119	3-359-414-01	SCREW (+PTPWH 2X23)	
120	3-359-450-01	PLATE, GROUND	
121	X-3362-078-1	TABLE ASSY (B), REEL	
122	3-362-308-01	CAP (REEL)	

HE101 A-2003-838-A BASE ASSY, HEAD (ERASE)  
HRP101 A-2003-838-A BASE ASSY, HEAD (PB/REC)  
M1 X-3359-417-1 MOTOR ASSY, CAPSTAN  
M2 X-3363-501-1 MOTOR ASSY, REEL

**7-4. MECHANISM SECTION 2**  
**(TCM-190RB12CJ)**



Ref. No.	Part No.	Description	Remark
151	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
152	3-359-469-01	SPACER	
* 153	3-359-425-01	SLIDER (REVERSE SLIDER)	
154	3-359-426-01	LEVER (REVERSE LEVER)	
* 155	3-359-427-01	SLIDER (REVERSE SLIDER)	
* 156	3-359-415-01	SLIDER (TRIGGER SLIDER)	
157	3-359-448-01	GEAR (TRIGGER)	
158	3-359-454-01	SPRING, TORSION	
159	3-359-429-01	SLIDER (BRAKE PLATE)	

Ref. No.	Part No.	Description	Remark
160	3-359-420-01	GEAR (CAM GEAR)	
161	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
162	X-3359-405-1	LEVER (FR ARM) ASSY	
163	3-359-453-01	SPRING (FR ARM), TORSION	
164	3-359-419-01	GEAR (FR GEAR)	
165	3-359-421-01	CLUTCH (REEL DISK)	
166	3-359-418-01	PULLEY (FR PULLEY)	

## SECTION 8

### ELECTRICAL PARTS LIST

AUDIO

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL: Metal-film resistor  
METAL OXIDE: Metal oxide-film resistor  
F: nonflammable

● Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

● SEMICONDUCTORS  
In each case,  $u:\mu$ , for example:  
 $uA:\mu A$ ,  $uPA:\mu PA$ ,  
 $uPB:\mu PB$ ,  $uPC:\mu PC$ ,  
 $uPD:\mu PD$ ,...

● CAPACITORS  
 $uF:\mu F$

● COILS  
 $uH:\mu H$

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
*	A-2006-828-A	AUDIO BOARD, COMPLETE		C92	1-136-157-00	FILM	0.022uF 5% 50V				
*****											
		< CAPACITOR >		C93	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V				
C11	1-163-131-00	CERAMIC CHIP	390PF 5% 50V	C94	1-136-478-11	FILM	470PF 5% 630V				
C12	1-136-157-00	FILM	0.022uF 5% 50V	C95	1-136-433-11	FILM	100PF 5% 630V				
C13	1-124-234-00	ELECT	22uF 20% 16V	C96	1-163-143-00	CERAMIC CHIP	0.0012uF 5% 50V				
C18	1-163-117-00	CERAMIC CHIP	100PF 5% 50V	C97	1-136-273-91	FILM	75PF 5% 630V				
C21	1-163-131-00	CERAMIC CHIP	390PF 5% 50V	C98	1-163-003-11	CERAMIC CHIP	330PF 10% 50V				
C22	1-136-157-00	FILM	0.022uF 5% 50V	C99	1-164-005-11	CERAMIC CHIP	0.47uF 25V				
C23	1-124-234-00	ELECT	22uF 20% 16V	< CONNECTOR >							
C28	1-163-117-00	CERAMIC CHIP	100PF 5% 50V	* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD					
C31	1-124-234-00	ELECT	22uF 20% 16V	* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P					
C32	1-124-234-00	ELECT	22uF 20% 16V	* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD					
C33	1-124-234-00	ELECT	22uF 20% 16V	* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P					
C51	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	* CNP72	1-580-411-11	SOCKET, CONNECTOR 4P					
C52	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	* CNP75	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P					
C53	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V	< DIODE >							
C54	1-136-601-11	FILM	0.01uF 5% 630V	D31	8-719-016-74	DIODE	1SS352				
C56	1-164-505-11	CERAMIC CHIP	2.2uF 16V	< IC >							
C57	1-164-346-11	CERAMIC CHIP	1uF 16V	IC31	8-759-106-02	IC	uPC4570G2				
C71	1-164-346-11	CERAMIC CHIP	1uF 16V	IC81	8-759-106-56	IC	uPC1297CA				
C80	1-124-234-00	ELECT	22uF 20% 16V	< COIL >							
C81	1-164-232-11	CERAMIC CHIP	0.01uF 50V	L81	1-410-780-11	INDUCTOR	27mH				
C82	1-136-157-00	FILM	0.022uF 5% 50V	L91	1-410-780-11	INDUCTOR	27mH				
C83	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	< TRANSISTOR >							
C84	1-136-478-11	FILM	470PF 5% 630V	Q51	8-729-808-01	TRANSISTOR	2SD1622-S				
C85	1-136-433-11	FILM	100PF 5% 630V	Q52	8-729-808-01	TRANSISTOR	2SD1622-S				
C86	1-163-143-00	CERAMIC CHIP	0.0012uF 5% 50V	Q53	8-729-808-01	TRANSISTOR	2SD1622-S				
C87	1-136-273-91	FILM	75PF 5% 630V	Q71	8-729-216-22	TRANSISTOR	2SA1162				
C88	1-163-003-11	CERAMIC CHIP	330PF 10% 50V								
C89	1-124-234-00	ELECT	22uF 20% 16V								
C90	1-107-045-00	MICA	3.9PF 500V								
C91	1-164-232-11	CERAMIC CHIP	0.01uF 50V								

**AUDIO**   **SW-A**   **SYSTEM CONTROL**

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
< RESISTOR >											
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W			< CONNECTOR >			
R12	1-216-025-00	METAL CHIP	100	5%	1/10W			* TP81 1-568-449-11 HOUSING, CONNECTOR(PC BOARD)3P			
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W			*****			
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W			* 1-634-841-14 SW-A BOARD			
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W			*****			
R22	1-216-025-00	METAL CHIP	100	5%	1/10W			3-343-419-01 HOLDER (S SENSER A)			
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W			< CONNECTOR >			
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W			* CNP81 1-568-852-11 SOCKET, CONNECTOR 9P			
R31	1-216-033-00	METAL CHIP	220	5%	1/10W			< IC >			
R32	1-216-033-00	METAL CHIP	220	5%	1/10W			IC81 8-719-710-03 DIODE NJL5165K-B			
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W			< RESISTOR >			
R52	1-216-097-00	METAL CHIP	100K	5%	1/10W			R81 1-249-414-11 CARBON 560 5% 1/4W			
R53	1-216-073-00	METAL CHIP	10K	5%	1/10W			R82 1-247-818-11 CARBON 300 5% 1/4W			
R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W			R83 1-247-834-11 CARBON 1.3K 5% 1/4W			
R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W			R84 1-249-417-11 CARBON 1K 5% 1/4W			
R57	1-216-298-00	METAL CHIP	2.2	5%	1/10W			R85 1-249-408-11 CARBON 180 5% 1/4W			
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W			< SWITCH >			
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W			S81 1-571-958-11 SWITCH, PUSH (1 KEY) (STOP)			
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W			S82 1-571-281-21 SWITCH, LEAF (Cr02)			
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W			S83 1-571-281-21 SWITCH, LEAF (METAL)			
R76	1-216-090-00	METAL CHIP	51K	5%	1/10W			S84 1-571-281-21 SWITCH, LEAF (REC A)			
R81	1-216-073-00	METAL CHIP	10K	5%	1/10W			S85 1-571-281-21 SWITCH, LEAF (REC B)			
R82	1-216-085-00	METAL CHIP	33K	5%	1/10W			S86 1-571-281-21 SWITCH, LEAF (HALF)			
R83	1-216-001-00	METAL CHIP	10	5%	1/10W			*****			
R84	1-216-101-00	METAL CHIP	150K	5%	1/10W			* A-2006-786-A SYSTEM CONTROL BOARD, COMPLETE			
R85	1-216-075-00	METAL CHIP	12K	5%	1/10W			*****			
R95	1-216-075-00	METAL CHIP	12K	5%	1/10W			* 1-533-213-31 HOLDER, FUSE			
< VARIABLE RESISTOR >											
RV11	1-241-627-11	RES, ADJ, CARBON 1K (PB LEVEL)						* 1-562-327-00 SOCKET, CONNECTOR 3P			
RV21	1-241-627-11	RES, ADJ, CARBON 1K (PB LEVEL)						< CAPACITOR >			
RV71	1-241-630-11	RES, ADJ, CARBON 10K (TAPE SPEED)						C101 1-124-907-11 ELECT 10uF 20% 50V			
RV72	1-241-630-11	RES, ADJ, CARBON 10K (TAPE SPERD)						C102 1-136-157-00 FILM 0.022uF 5% 50V			
RV81	1-241-122-11	RES, ADJ, CARBON 22K (REC BIAS)						C103 1-130-471-00 MYLAR 0.001uF 5% 50V			
RV91	1-241-122-11	RES, ADJ, CARBON 22K (REC BIAS)						C104 1-130-475-00 MYLAR 0.0022uF 5% 50V			
< RELAY >											
RY31	1-515-803-11	RELAY						C105 1-130-475-00 MYLAR 0.0022uF 5% 50V			
< TRANSFORMER >											
T51	1-406-417-11	COIL, BIAS OSCILLATION						C106 1-130-475-00 MYLAR 0.0022uF 5% 50V			
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR						C107 1-136-174-00 FILM 0.56uF 5% 50V			
								C108 1-136-171-00 FILM 0.33uF 5% 50V			
								C109 1-124-907-11 ELECT 10uF 20% 50V			
								C110 1-124-907-11 ELECT 10uF 20% 50V			

## SYSTEM CONTROL

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C111	1-136-157-00	FILM	0.022uF	5%	50V	C808	1-164-159-11	CERAMIC	0.1uF	50V	
C121	1-124-903-11	ELECT	1uF	20%	50V	C809	1-164-159-11	CERAMIC	0.1uF	50V	
C122	1-123-382-00	ELECT	3.3uF	20%	100V	C810	1-124-907-11	ELECT	10uF	20%	50V
C123	1-124-465-00	ELECT	0.47uF	20%	50V			< CONNECTOR >			
C151	1-123-382-00	ELECT	3.3uF	20%	100V						
C201	1-124-907-11	ELECT	10uF	20%	50V	* CN505	1-568-828-11	SOCKET, CONNECTOR 9P			
C202	1-136-157-00	FILM	0.022uF	5%	50V	* CN607	1-580-782-11	CONNECTOR, BOARD TO BOARD			
C203	1-130-471-00	MYLAR	0.001uF	5%	50V	* CN901	1-580-782-11	CONNECTOR, BOARD TO BOARD			
C204	1-130-475-00	MYLAR	0.0022uF	5%	50V	* CN902	1-580-782-11	CONNECTOR, BOARD TO BOARD			
C205	1-130-475-00	MYLAR	0.0022uF	5%	50V	* CN903	1-580-782-11	CONNECTOR, BOARD TO BOARD			
C206	1-130-475-00	MYLAR	0.0022uF	5%	50V	* CNP501	1-564-337-00	PIN, CONNECTOR 3P			
C207	1-136-174-00	FILM	0.56uF	5%	50V	* CNP502	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
C208	1-136-171-00	FILM	0.33uF	5%	50V	* CNP503	1-691-916-11	CONNECTOR, BOARD TO BOARD			
C209	1-124-907-11	ELECT	10uF	20%	50V	* CNP504	1-691-916-11	CONNECTOR, BOARD TO BOARD			
C210	1-124-907-11	ELECT	10uF	20%	50V	* CNP505	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
C211	1-136-157-00	FILM	0.022uF	5%	50V	* CNP506	1-564-337-61	PIN, CONNECTOR 3P			
C221	1-124-903-11	ELECT	1uF	20%	50V	* CNP507	1-580-784-11	CONNECTOR, BOARD TO BOARD			
C222	1-123-382-00	ELECT	3.3uF	20%	100V	* CNP508	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
C223	1-124-465-00	ELECT	0.47uF	20%	50V	* CNP601	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
C251	1-123-382-00	ELECT	3.3uF	20%	100V	* CNP702	1-564-340-00	PIN, CONNECTOR 6P			
C501	1-124-907-11	ELECT	10uF	20%	50V	* CNP801	1-580-784-11	CONNECTOR, BOARD TO BOARD			
C502	1-124-907-11	ELECT	10uF	20%	50V	* CNP802	1-580-784-11	CONNECTOR, BOARD TO BOARD			
C503	1-126-233-11	ELECT	22uF	20%	50V	* CNP803	1-580-784-11	CONNECTOR, BOARD TO BOARD			
C504	1-124-907-11	ELECT	10uF	20%	50V			< DIODE >			
C505	1-124-907-11	ELECT	10uF	20%	50V	D151	8-719-987-63	DIODE	1N4148M		
C521	1-124-907-11	ELECT	10uF	20%	50V	D152	8-719-933-33	DIODE	HZS6A1L		
C541	1-124-034-51	ELECT	33uF	20%	16V	D251	8-719-987-63	DIODE	1N4148M		
C551	1-162-217-31	CERAMIC	56PF	5%	50V	D252	8-719-933-33	DIODE	HZS6A1L		
C552	1-161-494-00	CERAMIC	0.022uF		25V	D545	8-719-987-63	DIODE	1N4148M		
C553	1-162-217-31	CERAMIC	56PF	5%	50V	D701	8-719-200-77	DIODE	10E2N		
C554	1-124-925-11	ELECT	2.2uF	20%	100V	D702	8-719-200-77	DIODE	10E2N		
C555	1-124-925-11	ELECT	2.2uF	20%	100V	D703	8-719-200-77	DIODE	10E2N		
C701	1-124-563-11	ELECT	2200uF	20%	25V	D704	8-719-200-77	DIODE	10E2N		
C702	1-124-563-11	ELECT	2200uF	20%	25V	D705	8-719-200-77	DIODE	10E2N		
C703	1-124-477-11	ELECT	47uF	20%	25V	D706	8-719-200-77	DIODE	10E2N		
C704	1-124-473-11	ELECT	1000uF	20%	10V	D707	8-719-933-33	DIODE	HZS6A1L		
C705	1-124-473-11	ELECT	1000uF	20%	10V	D708	8-719-001-15	DIODE	UZL-9M2		
C706	1-124-927-11	ELECT	4.7uF	20%	100V	D709	8-719-000-78	DIODE	UZL-7L2		
C708	1-124-907-11	ELECT	10uF	20%	50V	D710	8-719-200-77	DIODE	10E2N		
C709	1-124-472-11	ELECT	470uF	20%	10V	D711	8-719-987-63	DIODE	1N4148M		
C710	1-124-122-11	ELECT	100uF	20%	50V	D712	8-719-987-63	DIODE	1N4148M		
C711	1-164-159-11	CERAMIC	0.1uF		50V	D713	8-719-000-93	DIODE	UZL-7H1		
C712	1-124-910-11	ELECT	47uF	20%	50V	D714	8-719-987-63	DIODE	1N4148M		
C802	1-161-494-00	CERAMIC	0.022uF		25V	D715	8-719-933-36	DIODE	HZS6B1L		
C803	1-124-907-11	ELECT	10uF	20%	50V	D801	8-719-200-77	DIODE	10E2N		
C804	1-124-907-11	ELECT	10uF	20%	50V	D802	8-719-987-63	DIODE	1N4148M		
C805	1-164-159-11	CERAMIC	0.1uF		50V	D803	8-719-987-63	DIODE	1N4148M		
C806	1-126-176-11	ELECT	220uF	20%	10V						
C807	1-162-288-31	CERAMIC	330PF	10%	50V						

## SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark				
< INDICATOR TUBE >											
FL901	1-519-713-11	INDICATOR TUBE, FLUORESCENT		Q805	8-729-620-05	TRANSISTOR	2SC2603-EF				
< IC >											
IC501	8-752-059-55	IC CXA1331S		Q806	8-729-900-65	TRANSISTOR	DTA144ES				
IC502	8-752-055-61	IC CXA1578P		Q807	8-729-900-61	TRANSISTOR	DTA114ES				
IC503	8-759-000-48	IC MC1405ZBCP		Q808	8-729-900-80	TRANSISTOR	DTC114ES				
IC504	8-759-945-58	IC RC4558P		Q809	8-729-801-84	TRANSISTOR	2SB1013-4				
IC505	8-759-945-58	IC RC4558P		Q810	8-729-119-76	TRANSISTOR	2SA1175-HFE				
IC506	8-759-634-51	IC M5218AP		< RESISTOR >							
IC701	8-759-945-58	IC RC4558P		R101	1-249-417-11	CARBON	1K 5% 1/4W				
IC801	8-759-065-44	IC M50940-395SP		R102	1-249-421-11	CARBON	2.2K 5% 1/4W				
IC802	8-759-803-42	IC LA6500-FA		R103	1-247-887-00	CARBON	220K 5% 1/4W				
IC901	8-741-100-48	IC SBX1610-59		R104	1-249-423-11	CARBON	3.3K 5% 1/4W				
< JACK >											
J501	1-565-258-11	JACK, PIN 4P (LINE IN/OUT)		R105	1-247-887-00	CARBON	220K 5% 1/4W				
J502	1-568-519-41	JACK, LARGE TYPE (HEADPHONES)		R106	1-249-423-11	CARBON	3.3K 5% 1/4W				
< FILTER >											
LPF101	1-231-388-00	FILTER, LOW PASS		R107	1-249-428-11	CARBON	8.2K 5% 1/4W				
LPF201	1-231-388-00	FILTER, LOW PASS		R108	1-247-864-11	CARBON	24K 5% 1/4W				
< TRANSISTOR >											
Q101	8-729-900-89	TRANSISTOR DTC144ES		R109	1-249-414-11	CARBON	560 5% 1/4W				
Q102	8-729-900-80	TRANSISTOR DTC114ES		R110	1-249-421-11	CARBON	2.2K 5% 1/4W				
Q103	8-729-142-25	TRANSISTOR 2SD1020-HFE		R111	1-249-421-11	CARBON	2.2K 5% 1/4W				
Q201	8-729-900-89	TRANSISTOR DTC144ES		R112	1-249-432-11	CARBON	18K 5% 1/4W				
Q202	8-729-900-80	TRANSISTOR DTC114ES		R113	1-249-425-11	CARBON	4.7K 5% 1/4W				
Q203	8-729-142-25	TRANSISTOR 2SD1020-HFE		R121	1-249-429-11	CARBON	10K 5% 1/4W				
Q521	8-729-900-80	TRANSISTOR DTC114ES		R122	1-249-423-11	CARBON	3.3K 5% 1/4W				
Q522	8-729-900-89	TRANSISTOR DTC144ES		R141	1-249-433-11	CARBON	22K 5% 1/4W				
Q531	8-729-900-61	TRANSISTOR DTA114ES		R142	1-249-417-11	CARBON	1K 5% 1/4W				
Q532	8-729-900-80	TRANSISTOR DTC114ES		R151	1-249-434-11	CARBON	27K 5% 1/4W				
Q541	8-729-900-65	TRANSISTOR DTA144ES		R152	1-247-868-11	CARBON	36K 5% 1/4W				
Q542	8-729-900-89	TRANSISTOR DTC144ES		R153	1-247-870-11	CARBON	43K 5% 1/4W				
Q551	8-729-119-76	TRANSISTOR 2SA1175-HFE		R154	1-249-408-11	CARBON	180 5% 1/4W				
Q701	8-729-141-83	TRANSISTOR 2SA473		R161	1-249-432-11	CARBON	18K 5% 1/4W				
Q702	8-729-209-15	TRANSISTOR 2SD2012		R162	1-249-421-11	CARBON	2.2K 5% 1/4W				
Q703	8-729-900-74	TRANSISTOR DTC143TS		R163	1-247-854-11	CARBON	9.1K 5% 1/4W				
Q704	8-729-620-05	TRANSISTOR 2SC2603-EF		R164	1-249-409-11	CARBON	220 5% 1/4W				
Q705	8-729-209-15	TRANSISTOR 2SD2012		R165	1-249-432-11	CARBON	18K 5% 1/4W				
Q706	8-729-900-74	TRANSISTOR DTC143TS		R201	1-249-417-11	CARBON	1K 5% 1/4W				
Q707	8-729-119-76	TRANSISTOR 2SA1175-HFE		R202	1-249-421-11	CARBON	2.2K 5% 1/4W				
Q708	8-729-140-04	TRANSISTOR 2SB1116A-L		R203	1-247-887-00	CARBON	220K 5% 1/4W				
Q802	8-729-900-80	TRANSISTOR DTC114ES		R204	1-249-423-11	CARBON	3.3K 5% 1/4W				
Q803	8-729-900-65	TRANSISTOR DTA144ES		R205	1-247-887-00	CARBON	220K 5% 1/4W				
Q804	8-729-620-05	TRANSISTOR 2SC2603-EF		R206	1-249-423-11	CARBON	3.3K 5% 1/4W				
				R207	1-249-428-11	CARBON	8.2K 5% 1/4W				
				R208	1-247-864-11	CARBON	24K 5% 1/4W				
				R209	1-249-414-11	CARBON	560 5% 1/4W				
				R210	1-249-421-11	CARBON	2.2K 5% 1/4W				
				R211	1-249-421-11	CARBON	2.2K 5% 1/4W				
				R212	1-249-432-11	CARBON	18K 5% 1/4W				
				R213	1-249-425-11	CARBON	4.7K 5% 1/4W				
				R221	1-249-429-11	CARBON	10K 5% 1/4W				

## SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R222	1-249-423-11	CARBON	3.3K 5% 1/4W	R705	1-249-419-11	CARBON	1.5K 5% 1/4W
R241	1-249-433-11	CARBON	22K 5% 1/4W	R706	1-249-429-11	CARBON	10K 5% 1/4W
R242	1-249-417-11	CARBON	1K 5% 1/4W	R707	1-249-419-11	CARBON	1.5K 5% 1/4W
R251	1-249-434-11	CARBON	27K 5% 1/4W	R708	1-249-425-11	CARBON	4.7K 5% 1/4W
R252	1-247-868-11	CARBON	36K 5% 1/4W	R709	1-249-409-11	CARBON	220 5% 1/4W
R253	1-247-870-11	CARBON	43K 5% 1/4W	R710	1-249-417-11	CARBON	1K 5% 1/4W
R254	1-249-408-11	CARBON	180 5% 1/4W	R711	1-249-427-11	CARBON	6.8K 5% 1/4W
R261	1-249-432-11	CARBON	18K 5% 1/4W	R712	1-249-427-11	CARBON	6.8K 5% 1/4W
R262	1-249-421-11	CARBON	2.2K 5% 1/4W	R713	1-249-417-11	CARBON	1K 5% 1/4W
R263	1-247-854-11	CARBON	9.1K 5% 1/4W	R714	1-247-838-00	CARBON	2K 5% 1/4W
R264	1-249-409-11	CARBON	220 5% 1/4W	R715	1-249-421-11	CARBON	2.2K 5% 1/4W
R265	1-249-432-11	CARBON	18K 5% 1/4W	R716	1-249-429-11	CARBON	10K 5% 1/4W
R501	1-249-417-11	CARBON	1K 5% 1/4W	R717	1-249-436-11	CARBON	39K 5% 1/4W
R502	1-215-455-00	METAL	27K 1% 1/6W	R718	1-249-433-11	CARBON	22K 5% 1/4W
R503	1-249-429-11	CARBON	10K 5% 1/4W	R719	1-249-441-11	CARBON	100K 5% 1/4W
R521	1-215-455-00	METAL	27K 1% 1/6W	R801	1-249-432-11	CARBON	18K 5% 1/4W
R522	1-249-429-11	CARBON	10K 5% 1/4W	R802	1-249-423-11	CARBON	3.3K 5% 1/4W
R523	1-249-421-11	CARBON	2.2K 5% 1/4W	R803	1-249-435-11	CARBON	33K 5% 1/4W
R524	1-249-433-11	CARBON	22K 5% 1/4W	R804	1-249-435-11	CARBON	33K 5% 1/4W
R525	1-247-854-11	CARBON	9.1K 5% 1/4W	R805	1-247-903-00	CARBON	1M 5% 1/4W
R526	1-247-846-11	CARBON	4.3K 5% 1/4W	R806	1-249-435-11	CARBON	33K 5% 1/4W
R527	1-249-425-11	CARBON	4.7K 5% 1/4W	R807	1-249-435-11	CARBON	33K 5% 1/4W
R528	1-249-425-11	CARBON	4.7K 5% 1/4W	R808	1-249-435-11	CARBON	33K 5% 1/4W
R532	1-249-417-11	CARBON	1K 5% 1/4W	R809	1-249-435-11	CARBON	33K 5% 1/4W
R534	1-247-836-11	CARBON	1.6K 5% 1/4W	R812	1-249-429-11	CARBON	10K 5% 1/4W
R535	1-249-426-11	CARBON	5.6K 5% 1/4W	R813	1-249-435-11	CARBON	33K 5% 1/4W
R541	1-247-850-11	CARBON	6.2K 5% 1/4W	R814	1-249-435-11	CARBON	33K 5% 1/4W
R542	1-247-862-11	CARBON	20K 5% 1/4W	R815	1-249-435-11	CARBON	33K 5% 1/4W
R543	1-249-428-11	CARBON	8.2K 5% 1/4W	R816	1-249-429-11	CARBON	10K 5% 1/4W
R545	1-249-425-11	CARBON	4.7K 5% 1/4W	R817	1-247-862-11	CARBON	20K 5% 1/4W
R546	1-247-838-00	CARBON	2K 5% 1/4W	R818	1-249-433-11	CARBON	22K 5% 1/4W
R551	1-249-441-11	CARBON	100K 5% 1/4W	R819	1-249-430-11	CARBON	12K 5% 1/4W
R552	1-249-429-11	CARBON	10K 5% 1/4W	R820	1-249-433-11	CARBON	22K 5% 1/4W
R553	1-249-441-11	CARBON	100K 5% 1/4W	R821	1-249-433-11	CARBON	22K 5% 1/4W
R554	1-249-428-11	CARBON	8.2K 5% 1/4W	R822	1-249-405-11	CARBON	100 5% 1/4W
R555	1-249-441-11	CARBON	100K 5% 1/4W	R823	1-249-429-11	CARBON	10K 5% 1/4W
R556	1-249-423-11	CARBON	3.3K 5% 1/4W	R824	1-249-413-11	CARBON	470 5% 1/4W
R557	1-249-441-11	CARBON	100K 5% 1/4W	R825	1-249-403-11	CARBON	68 5% 1/4W
R558	1-249-429-11	CARBON	10K 5% 1/4W	R826	1-249-422-11	CARBON	2.7K 5% 1/4W
R559	1-249-429-11	CARBON	10K 5% 1/4W	R827	1-249-422-11	CARBON	2.7K 5% 1/4W
R560	1-249-417-11	CARBON	1K 5% 1/4W	R828	1-249-422-11	CARBON	2.7K 5% 1/4W
R561	1-249-431-11	CARBON	15K 5% 1/4W	R830	1-249-405-11	CARBON	100 5% 1/4W
R562	1-249-436-11	CARBON	39K 5% 1/4W	R831	1-249-405-11	CARBON	100 5% 1/4W
R601	1-249-429-11	CARBON	10K 5% 1/4W	R832	1-249-405-11	CARBON	100 5% 1/4W
R602	1-249-435-11	CARBON	33K 5% 1/4W	R833	1-249-405-11	CARBON	100 5% 1/4W
R701	1-249-425-11	CARBON	4.7K 5% 1/4W	R901	1-249-420-11	CARBON	1.8K 5% 1/4W
R702	1-249-420-11	CARBON	1.8K 5% 1/4W	R902	1-249-423-11	CARBON	3.3K 5% 1/4W
R703	1-249-426-11	CARBON	5.6K 5% 1/4W	R903	1-249-426-11	CARBON	5.6K 5% 1/4W
R704	1-249-427-11	CARBON	6.8K 5% 1/4W	R904	1-249-429-11	CARBON	10K 5% 1/4W

## SYSTEM CONTROL

Ref. No.	Part No.	Description	Remark
R905	1-249-435-11	CARBON	33K 5% 1/4W
R906	1-249-420-11	CARBON	1.8K 5% 1/4W
R907	1-249-423-11	CARBON	3.3K 5% 1/4W
R908	1-249-426-11	CARBON	5.6K 5% 1/4W
R909	1-249-429-11	CARBON	10K 5% 1/4W
R910	1-249-429-11	CARBON	10K 5% 1/4W

## &lt; VARIABLE RESISTOR &gt;

RV121	1-238-600-11	RES, ADJ, CARBON 10K (REC GAIN)
RV221	1-238-600-11	RES, ADJ, CARBON 10K (REC GAIN)
RV501	1-241-820-11	RES, VAR, CARBON 50K/50K (REC LEVEL)
RV502	1-241-821-11	RES, VAR, CARBON 50K/50K (BALANCE)
RV503	1-241-822-11	RES, VAR, CARBON 5K (BIAS)

## &lt; SWITCH &gt;

S501	1-692-063-11	SWITCH, ROTARY (DOLBY NR)
S601	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)
S602	1-571-520-11	SWITCH, SLIDE (DIRECTION)
S901	1-554-303-21	SWITCH, TACTILE (PAUSE)
S902	1-554-303-21	SWITCH, TACTILE (▷ )
S904	1-554-303-21	SWITCH, TACTILE (◁ )
S905	1-554-303-21	SWITCH, TACTILE (REC MUTE)
S906	1-554-303-21	SWITCH, TACTILE (RESET)
S907	1-554-303-21	SWITCH, TACTILE (MEMORY)
S908	1-554-303-21	SWITCH, TACTILE (■ )
S909	1-554-303-21	SWITCH, TACTILE (◁◁ )
S910	1-554-303-21	SWITCH, TACTILE (▷▷ )
S911	1-554-303-21	SWITCH, TACTILE (REC)

## &lt; CONNECTOR &gt;

\* TP801 1-564-505-11 PLUG, CONNECTOR 2P

## &lt; CRYSTAL &gt;

X801 1-577-358-21 VIBRATOR, CERAMIC

Ref. No.	Part No.	Description	Remark
▲T901	1-450-750-11	TRANSFORMER, POWER (AEP)	
▲T901	1-450-751-11	TRANSFORMER, POWER (US,Canadian)	

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## ACCESSORIES &amp; PACKING MATERIALS

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*	1-558-271-11	CORD, CONNECTION
*	3-350-830-01	CUSHION
*	3-376-443-81	INDIVIDUAL CARTON
	3-755-327-11	MANUAL, INSTRUCTION (Canadian,AEP) (ENGLISH/FRENCH/SPANISH/PORTUGUESE)
	3-755-327-21	MANUAL, INSTRUCTION (US,Canadian) (ENGLISH)
	3-755-327-41	MANUAL, INSTRUCTION (AEP) (GERMAN/DUTCH/SWEDISH/ITALIAN)

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## HARDWARE LIST

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#1	7-682-548-09	SCREW +BVTT 3X8 (S)
#2	7-682-547-04	SCREW +BVTT 3X6 (S)
#3	7-621-849-00	SCREW (BV/RING)
#4	7-621-773-95	SCREW +BVTT 2.6X6 (S)
#5	7-685-134-19	SCREW (+ PTPWH) (2.6X8)
#6	7-621-775-00	SCREW +B 2.6X3
#7	7-627-556-08	SCREW +P 2.6X2.8

## &lt; CONNECTOR &gt;

\* TP801 1-564-505-11 PLUG, CONNECTOR 2P

## &lt; CRYSTAL &gt;

X801 1-577-358-21 VIBRATOR, CERAMIC

## MISCELLANEOUS

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1	1-575-781-11	WIRE, FLAT TYPE (9 CORE)
△6	1-555-795-00	CORD, POWER, EULO PLUG (AEP)
△6	1-558-945-11	CORD, POWER (POLAR.SPT-1)(US,Canadian)
103	1-638-983-11	PC BOARD, MOTOR FLEXIBLE
△F701	1-532-285-00	FUSE, TIME-LAG (AEP)
△F701	1-532-741-11	FUSE, GLASS TUBE (US,Canadian)
△F702	1-532-285-00	FUSE, TIME-LAG (AEP)
△F702	1-532-741-11	FUSE, GLASS TUBE (US,Canadian)
M1	X-3359-417-1	MOTOR ASSY, CAPSTAN
M2	X-3363-501-1	MOTOR ASSY, REEL

Note:  
The components identified by mark ▲ or dotted line with mark ▲ are critical for safety.  
Replace only with part number specified.

Note:  
Les composants identifiés par une marque ▲ sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.